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FINAL REPORT

PSRO AMBULATORY CARE QUALITY ASSURANCE REVIEW

VOLUME I. PROGRAM OVERVIEW AND DISCUSSION

NUMBER 2. CENTRAL MASSACHUSETTS PROFESSIONAL STANDARDS REVIEW ORGANIZATION

BY

HEALTH CARE MANAGEMENT SYSTEMS, INC.

DECEMBER 1978

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ACKNOWLEDGMENTS

This report would not be possible without the dedication and cooperation of the many individuals working in the five PSRO demonstration projects. The descriptions and findings contained in the report are based in the experience of the five PSROs working in the complex and challenging environment of ambulatory care to establish feasible methods for PSRO ambulatory care review. Individual project participants in each of the PSROs are listed in the appropriate sections of Volume I.

HSQB personnel active in original project formulation and direction throughout the demonstration were: Michael J. Goran, M.D.; Leslie G. Ford, M.D.; P. Gregory Banks; Penni St. Hilaire; Dennis Siebert; and the current director, Helen L. Smits, M.D.

The HCMS technical advisory board contributed substantially to this project by offering their expert consultation and advice, not only to HCMS but to individual projects and HSQB. The advisory board consists of Robert H. Brook, M.D.; Ruth Covell, M.D.; Paul J. Sanazaro, M.D.; and H. Richard Nesson, M.D.

The report itself represents the results of the combined efforts of all HCMS staff members engaged in the demonstration project. Merle A. Ryland, M.S., project director, directed the work going into the preparation of the report and contributed major sections of the manuscript. He also was responsible for project liaison, technical assistance and was the strong coordinating force in the project. Nicole H. White, Ph.D., director of special projects, was responsible for early efforts to establish a conceptual framework for project assistance and analysis and

also provided active direction during the early stages of the project. She again took an active role in organizing and preparing major areas of the manuscript during the preparation of the final report. Charles Foreman, M.S., senior data analyst, was responsible for the time consuming and difficult task of compiling, organizing and presenting data included in all reports. His analytical skills and consistent attention to data quality have added greatly to the utility of this report. Melinda Alpaugh, M.P.H., Research Associate, played a major role in the project during the second year and contributed a substantial portion of the manuscript. Other HCMS professional staff contributed substantially throughout the project. Staff members include: Edward Carels, Ph.D., Research Director, Kwai Fong Chui, Ph.C., Research Associate, Leonard Hurst, Senior System Analyst and Consultant, Alan Kubrin, M.A., M.P.P., Research Associate, and Aquilo Lipscomb, M.A., M.S., Research Associate

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PREFACE

Although the Health Standards and Quality Bureau (HSQB) had previously funded several special projects in ambulatory care quality assurance, the Bureau initiated a systematic investigation of formal ambulatory care review programs in 1975. Findings of this investigation* highlighted the need for careful examination of alternative ambulatory care review approaches to determine their feasibility, especially in the PSRO environment.

In 1976, under the guidance of Michael Goran, M.D., former Director, HSQB, a demonstration program was initiated to further examine ambulatory care review methods within Professional Standards Review Organizations.

On July 1, 1976 a letter from HSQB was sent to all the PSROs inviting them to participate in an ambulatory care review demonstration project. These letters specified that "the demonstrations will be designed to assess various approaches to ambulatory care quality assurance in a variety of health service delivery systems with substantial variety in the method of obtaining a rational PSRO coordination approach for each project." Five demonstration projects were selected to participate in the demonstration project. Representing a variety of locations and proposed methods the five projects began formal planning activities in early October 1976. The demonstration projects are Central Massachusetts PSRO, Bronx PSRO, Southcentral Pennsylvania PSRO, Multnomah Foundation for Medical Care, and New Mexico PSRO.

At the same time as the demonstration projects were being selected an analysis contractor was selected to "assist PSRO in developing the demonstration protocols and be responsible for assessment and analysis

*Contract No. 240-75-0101, Bureau of Quality Assurance, Health Services Administration

of the effectiveness of each of the demonstration projects in conjunction with the PSROs." Health Care Management Systems, Inc. (HCMS) has performed as the ambulatory demonstration analysis contractor since July, 1976. HCMS was also involved in a three-year grant program funded by The Robert Wood Johnson Foundation to examine ambulatory quality assurance programs with special emphasis on information systems. Some funding provided by the Foundation grant was used to give a private perspective to the government-funded demonstration project and to synthesize results of the project with other ambulatory care quality assurance research and evaluation programs in which HCMS was engaged.

This report on the development of ambulatory care review methods in the five PSROs demonstration projects is in partial fulfillment of the analysis contract requirements. The report includes two volumes and two appendices:

Volume	I:	Program Overview and Discussion
Section	1:	Bronx PSRO
	2:	Central Massachusetts PSRO
	3:	Multnomah Foundation for Medical Care
	4:	New Mexico PSRO
	5:	Southcentral Pennsylvania PSRO
Volume	II:	Policy Recommendations and Technical Guidelines
Appendix	1:	Interim Report - Cooperative Demonstration and Analysis of Ambulatory Care Quality Assurance Review Methodology in PSRO Settings - November 1977
Appendix	2:	Ambulatory Medical Care Quality Assurance 1977 Conference Proceedings, La Jolla Health Science Publications, La Jolla, California 1977

Project overviews and data for each of the demonstration projects are documented in Volume I. This volume is especially useful as examples of ambulatory care review developmental efforts in PSRO. Volume II, "Policy Documentation and Technical Guidelines" are directed to HSQB and other agencies involved in medical care quality assurance and utilization review in a regulatory environment. The appendices include the Interim Report which describes the first year demonstration project activity and findings. The second appendix is a book containing papers presented at a two-day national conference on ambulatory care quality assurance. The entire report is designed to assist organizations searching for feasible ambulatory care review alternatives.

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SECTION I

INTRODUCTION AND PURPOSE

Assessment activities conducted in each of the five Professional Standards Review Organization (PSRO) ambulatory review projects were concentrated in several areas: a) description of project administration, b) description of activities in the areas of planning and administration, topic selection, criteria development, data collection, data processing, review and decision making, feedback and intervention, and restudy, and c) description of resources expended to accomplish the project's goals.

The general objectives of this final report are to:

1. Summarize the PSRO activity by presenting a variety of descriptive documentation (Volume I).
2. Document findings of investigation of review techniques employed by each PSRO (Volume I).
3. Guide future technical assistance conducted by HSQB (Volume II).
4. Provide recommendations regarding implementation of ambulatory care review systems by current and future PSRO demonstration projects (Volume II).

Presented in this volume first is a brief program overview designed to acquaint the reader with each PSRO project. If more in-depth information is desired, either the site itself or HCMS can provide a more detailed description. The next three sections describe activities that occurred at each project and the results of these activities. Finally, the last section presents resource data for each PSRO site.

Of the five PSROs funded in the demonstration program, four are initiating ambulatory care review systems where no prior system existed. They are: Central Massachusetts PSRO, Bronx PSRO, Southcentral Pennsylvania

PSRO, and Multnomah Foundation for Medical Care. The fifth demonstration program, New Mexico PSRO, has operated a claim-based review system for several years under contract with the State Medicaid agency. The New Mexico PSRO demonstration has explored some specific review questions, most of which were research oriented.

HCMS data collection for this report has continued since the beginning of the demonstration project. Each project has cooperated in providing many different types of data including questionnaire information, counts of activities, computer run sheets, personnel hourly activity description, minutes of meetings, and written project reports. The cut-off date for data was August 31, 1978, except for resource data which was discontinued on June 30, 1978. Therefore, the most recent activities of each project are not reflected in this report. The reader should be aware that this report does not attempt to describe the entire data base of each project; the activities and data described are meant to be representative of the operations of each demonstration project.

SECTION II

PROGRAM OVERVIEW

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Robert Leary-Puter Associates, Inc.

PREFACE

Central Massachusetts Professional Standards Review Organization (CMPSRO) was awarded a contract by the Health Standards and Quality Bureau (HSQB) to develop and implement an ambulatory review system over a two-year period (October 1976 to October 1978) and have received a six-month extension to complete the project. CMPSRO proposed to identify potential problem areas in ambulatory care by capturing hospitalized cases for which hospitalization was theoretically preventable and by examining ambulatory care prior to the admission. CMPSRO also attempted to explore the concept of using the professional leadership and expertise of an established hospital audit and utilization review structure for the ambulatory review process.

CMPSRO secured the participation of 51 physicians from three ambulatory care sites including a multi-specialty clinic, physicians in a large medical arts building and solo physicians with offices throughout the city of Worcester. All participating physicians admitted their patients to St. Vincent Hospital.

Following HSQB approval of their concept paper, CMPSRO prepared preliminary and final planning documents during a four-month period.

PROJECT ADMINISTRATION

The Central Massachusetts PSRO Board of Trustees has had overall responsibility for the demonstration project. The Project Management Committee, composed of PSRO physicians and trustees as well as representatives from the St. Vincent Hospital staff, Fallon Clinic and Vernon

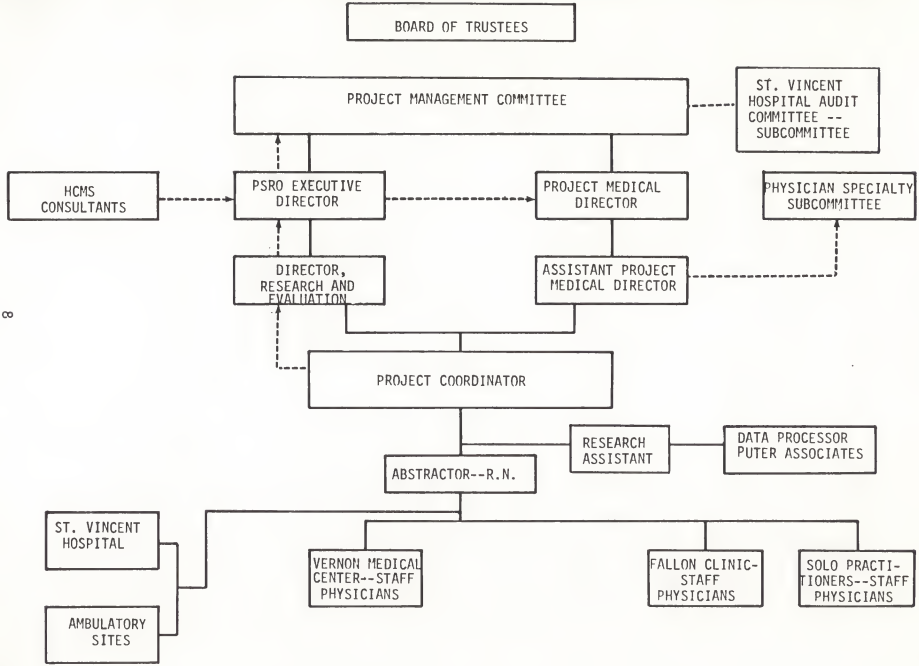
Medical Center, has overseen the technical and contractual aspects of the programs and reports to the Board of Trustees. The Project Management Committee is responsible for monitoring and approval of all plans of the St. Vincent Hospital (SVH) Subcommittee for Ambulatory Review. The latter body has primary responsibility for topic selection, criteria development, analysis and review. This committee function is considered critical to the project, as use of existing committees is a key transferability factor which the project hopes to demonstrate.

The project medical director is responsible for the methodological and technical aspects of the project, directing PSRO support staff and assigned with SVH medical staff and administrative personnel. The project medical director reports to the Management Committee, and is aided by an assistant medical director, who is responsible for all project-related activities at the Fallon Clinic, one of the participating sites. The two positions are one third time and one fifth time respectively.

Project staff includes director, research and evaluation who acts as project manager and reports to the executive director, the project coordinator who oversees all day-to-day review and analysis activities, the nurse coordinator who is reponsible for gathering all data both at St. Vincent Hospital and at physician's offices and the research assistant who assumes primary responsibility for the preparation and documentation of all data entry and analyses. The project coordinator reports to the director, research and evaluation. The nurse coordinator and research assistant report to the project coordinator. The administrative structure of the project is illustrated in Figure 1.

FIGURE 1

CENTRAL MASSACHUSETTS PSRO ORGANIZATION



CMPSRO has utilized several sources of consultative assistance throughout the life of the project. The project medical director has consulted with numerous physician specialists for assistance in criteria development and review. A researcher from Boston University Medical Center has worked on a consulting basis with CMPSRO to train the nurse abstractor. SysteMetrics, Inc. assisted in the initial work on the staging criteria.

A subcontract was made with Puter Associates to perform data processing including programming, input, editing, storing and processing the data using Yale University computer facilities.

TECHNICAL COMPONENTS

A. Selection of Topics for Review

The SVH Medical Audit Subcommittee for Ambulatory Review was responsible for topic selection. The committee included seven physicians who were drawn from the group of physicians who would potentially participate in the demonstration project. All the physicians involved in the demonstration practiced at one of the following group or solo practices and used St. Vincent as the primary hospital for admitting their patients:

1. The Fallon Clinic--a multispecialty group practice
2. The Vernon Medical Center--a medical arts building housing a number of solo practices
3. Several solo or small group practices including the Grafton Family Health Center

A number of selection parameters were established for the topic selection process by the SVH Subcommittee including:

1. Diagnoses for which advanced stages of disease or complications are theoretically preventable
2. High admission frequency
3. High cost per admission

A computer tape from St. Vincent Hospital was used to generate frequency data on high cost and high frequency admissions. The SVH Subcommittee selected seven diagnoses from the computer output which satisfied the topic selection parameters and for which ambulatory, preventive and therapeutic intervention is known to have a significant impact. From this group, five topics were ultimately selected including: chronic obstructive lung disease, diabetes, congestive heart failure, cancer of the breast, cancer of the colon/rectum (see Table 1).

TABLE 1: ADMISSION AND COST DATA FOR SELECTED REVIEW TOPICS*

Diagnosis	Number of Admissions	Average Length of Stay	Average Cost per Admission
Diabetes Mellitus	132	14.0 days	$2,026.00
Chronic Obstructive Lung Disease	162	16.1	3,220.48
Congestive Heart Failure	246	16.8	3,097.33
Cancer of the Breast	84	14.8	2,343.00
Cancer of the Large Intestine and Rectum	72	23.6	4,709.00

*The St. Vincent Hospital, Worcester, Mass., October 1975 to August 1975

Review cases were identified via a PAS discharge listing of cases by record number and diagnosis for the year 1976. Providers were identified for review through the case selection process at St. Vincent Hospital.

B. Criteria Development

Explicit process criteria for the five topics were developed by the SVH Subcommittee. The clinical criteria were considered essential to reviewing diagnosis and medical management and for assigning disease stage. The number of criteria ranged from 11 to 21 items per topic, and were categorized as subjective, objective, laboratory, management, medications and baseline medication (see Appendix A). Subjective criteria included presenting problems, signs, symptoms, and complaints which were used for determining the disease stage. All other criteria were used to determine diagnostic, therapeutic and management processes of care provided by the physician.

A unique set of staging criteria were developed by the SVH Subcommittee and were based on the following general definitions of the four severity levels of disease (see Appendix B):

I. Stage I disease is self-limiting and invariably managed on an outpatient basis.

II. Stage II disease is usually managed on an outpatient basis. However, if there is a failure to respond to therapy, the patient may be admitted.

III. Stage III disease is usually managed in the hospital because of poor response to treatment.

IV. Stage IV disease is invariably managed in the hospital because of the severity of the symptoms and failure of response to treatment.

The definitions did not apply to staging of cancer cases, which were staged only on first admission. The cancer staging criteria consisted of gross description and histological evidence of the tumor (see Appendix B).

Nonclinical data collection included standard patient and provider identification information, dates of visits and time periods between initial symptoms, visits, and diagnoses, record rating and validation of discharge diagnosis. Cases were abstracted only when the primary discharge diagnosis was validated. Cases with multiple primary diagnoses encompassing more than one of the selected topics were included under both topics but abstracted separately.

C. Data Collection and Processing

A general set of abstracting instructions was developed to accommodate the collection of both hospital and ambulatory data for all topics. The abstract form was designed to allow for entry of both free form and numerically coded data.

The abstract items which received numerical codes were the essential criteria. The codes used by the abstractor were: 0--not relevant; 1--present; 2--absent; 3--present and positive (i.e., a finding which should elicit a physician response). Criteria associated with staging were marked with an asterisk to aid the abstractor in determining the disease stage.

The abstractor added written comments adjacent to criteria. This additional type of data collection permitted the abstractor to add information on patient compliance, clinical values, subjective information not encompassed by the criteria set, and all pertinent information

which would assist in staging and ultimately in the review decision making.

In order to identify cases for review, it was necessary first to access the SVH data system. The PSRO secured the hospital's PAS reports to develop a listing of patients admitted during the study period with the selected diagnoses. Each hospital case was then logged, abstracted and staged for admission and discharge. The medical records for all patients were then abstracted, the primary diagnoses validated, and the disease stage at admission and discharge documented.

During the initial months of data collection, physician participation was sought prior to hospital abstracting, but some physicians who tentatively agreed later withdrew consent when ambulatory records were requested for abstracting. It was decided thereafter that physician cooperation would not be solicited until after six or more hospital records of an individual physician had been identified and abstracted. At that point personal contact was made by a member of the SVH Subcommittee. This was followed by a letter requesting written consent. Following receipt of the signed consent form, project staff contacted the physician to schedule ambulatory data abstracting.

A single nurse abstractor completed all of the hospital and office abstracting for the total of 610 study cases. Hospital abstracting entailed collection of only those elements which related to hospital admission and discharge staging. Ambulatory data abstracting was more extensive, including all available elements within the criteria set, and was completed for each visit during the three-month period prior to or between hospitalizations. Ambulatory visits were staged when adequate data was available.

FIGURE 2

CENTRAL MASSACHUSETTS PSRO DATA FLOW

Page 1. Case Selection

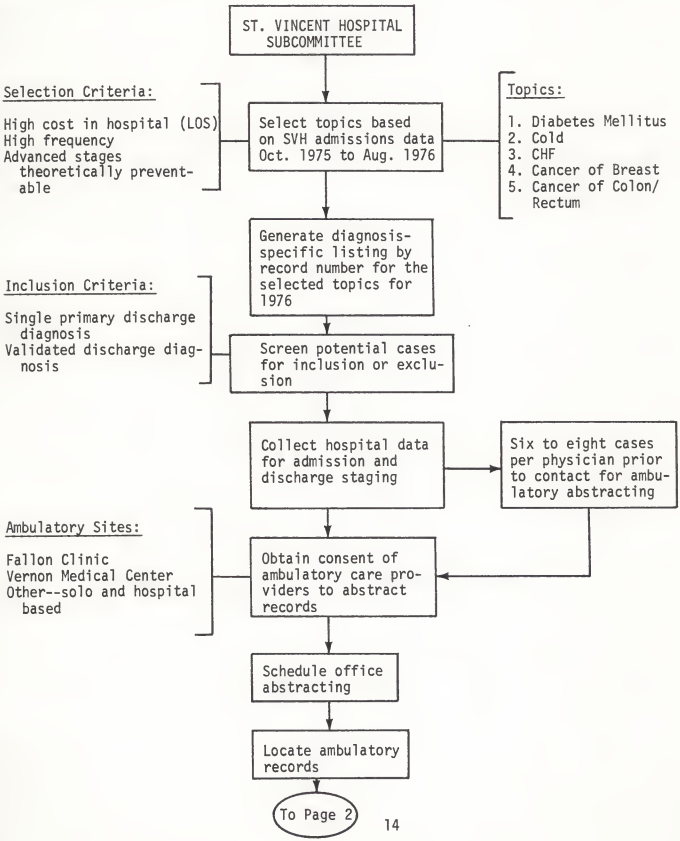
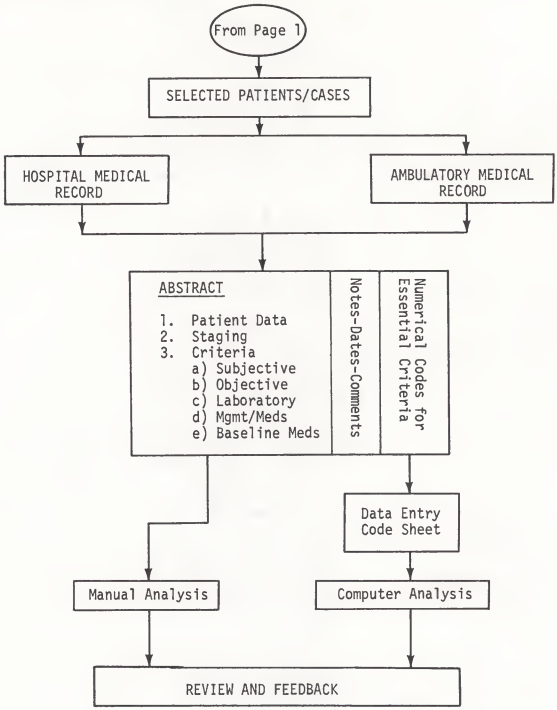

ST. VINCENT HOSPITAL SUBCOMMITTEE
Selection Criteria:
High cost in hospital (LOS)
High frequency
Advanced stages theoretically preventable
Select topics based on SVH admissions data Oct. 1975 to Aug. 1976
Topics:
1. Diabetes Mellitus
2. Cold
3. CHF
4. Cancer of Breast
5. Cancer of Colon/ Rectum
Generate diagnosis-specific listing by record number for the selected topics for 1976
Inclusion Criteria:
Single primary discharge diagnosis
Validated discharge diagnosis
Screen potential cases for inclusion or exclusion
Collect hospital data for admission and discharge staging
Six to eight cases per physician prior to contact for ambulatory abstracting
Ambulatory Sites:
Fallon Clinic
Vernon Medical Center
Other--solo and hospital based
Obtain consent of ambulatory care providers to abstract records
Schedule office abstracting
Locate ambulatory records
To Page 2

FIGURE 2 (CONT'D)

Page 2. Abstracting Data Entry and Analysis



The nurse abstractor found that hospital records were generally legible, complete, and consistent in format. Record systems in various ambulatory settings, however, presented a number of problems, the most serious being illegibility and lack of documentation in the records of the solo practitioners. Abstracting and coding underwent a number of modifications during the data collection process. Initially, there was a tendency to collect an excess of information, however, with the input of the SVH Subcommittee and with abstracting experience, the nurse abstractor was able to limit data collection to essential items only.

A separate quality control study was performed during the second project year to determine the comparability of information collected by the nurse abstractor and a medical records technician. The project staff aimed thereby to determine the differences in collecting clinical and nonclinical data between the two levels of personnel. The purpose of the exercise was to determine the reliability of nonclinical data, the influence of clinical judgment in coding and the feasibility of using nonclinical personnel for abstracting.

Due to technical limitations in the quality control study design, statistically valid conclusions regarding the comparability of the two types of personnel could not be drawn. However, the study revealed a need to redesign the abstract form, to tighten the parameters of the staging criteria in order to reduce the margin for interpretation, and to employ design features such as strict time parameters in future reliability tests.

D. Data Analysis, Review and Decision Making

Some manual analyses were completed at the midpoint of the project using the results of a pilot study of 227 hospital and 93 ambulatory records. One outcome of the pilot study was further conceptual development of the staging concept including the addition of discharge staging to the data set. A decrease in disease severity at discharge was thought to indicate that hospitalization altered the level of disease and restored it to the resting stage. The latter term refers to the stage at which the patient can be maintained, given good management and precluding any natural progression of the disease or poor patient compliance. Identification of changes in the disease stage was considered critical in determining points at which certain elements of hospital and ultimately ambulatory care, or lack thereof, could alter patient status.

A further staging hypothesis was incorporated into the study after the analysis of pilot study data. The hypothesis stated that the state of certain disease processes at the time of admission could be correlated with the preventive measures documented in the corresponding ambulatory record.

The data for 610 cases were prepared for computer entry by the Central Massachusetts PSRO staff. All cases were recoded to incorporate some of the information from the abstractor's free form notes. SVH Subcommittee members reviewed a sample of the newly coded abstracts to determine whether the abstractor's judgment was appropriate. CMPSRO staff found it necessary to modify the proposed on-line data entry system primarily on the basis of comparable costs. Costs for entry by individuals at Puter Associates, Inc. was determined to be much less than the costs which would be incurred by the CMPSRO. The data were delivered in batch

form to Puter Associates, Inc. who were responsible for programming, editing, input, and processing of the data using the Yale University computer facilities.

CMPSRO staff used the terminal at the PSRO to interact with the demonstration data. They tested the reliability of the system by asking basic research questions regarding patient demographics and the relationship of disease stage at admission to other variables. A list of analyses currently being performed (October 1978) with the demonstration data is referenced in Appendix C: CMPSRO Ambulatory Care Demonstration Project Analysis Displays.

Using a 5% sample of the review cases, HCMS prepared frequency counts for each criteria element and a summary of disease stage for ambulatory visits, hospital admissions and hospital discharges for all topics. The findings are described later in this report.

Review decision making has not formally begun, although some plans for this activity have been documented. Displays prepared by project staff will be reviewed initially by the SVH Subcommittee and then be forwarded to the PSRO Project Management Committee for their evaluation and recommendations. Thereafter options for analysis feedback will be determined. The focus of analysis feedback as outlined by CMPSRO staff may be the provider population, the patient population, or social agencies, or may entail referral of the problem back to the SVH Subcommittee.

The review of abstracts and data displays will be primarily the responsibility of the physician specialty subcommittees. The decision making format is basically implicit, but structured via a review form

which solicits decisions regarding the appropriateness of the hospitalization, staging classification, and primary reasons for hospitalization.

E. Intervention

The exact mode of intervention has not yet been determined by CMPSRO but plans for this activity are under way. Some of the data displays to be used in intervention have been identified, including: correlations of diagnostic and therapeutic office procedures with admission disease stage; presenting problems and patient compliance; analysis of time intervals between the first visit and the diagnosis; distributions of principal symptoms by admission stage; and mean hospitalization costs for admissions at each disease stage.

A number of ultimate objectives to be achieved via feedback have been outlined by CMPSRO, including the following impacts:

1. Decrease in the frequency of hospital readmissions and total admissions by disease topic.
2. Increase in the percentage of low stage cancer admissions among all cancer admissions.
3. Decrease in the total hospital patient days from the disease topics chosen.
4. Elimination of low stage, inappropriate admissions for chronic disease patients.
5. Decrease in hospital admissions at an advanced stage.
6. Decrease in the total hospital cost for the patient population.

SECTION III

ANALYSIS OF DESIGN AND PLANNING

INTRODUCTION

In an effort to identify the requirements essential for developing a Professional Standards Review Organization (PSRO) ambulatory care quality assurance capability, Health Care Management Systems, Inc. (HCMS) developed and administered two questionnaires to PSRO ambulatory care review system personnel participating in the demonstration program. The information gained from the questionnaires is intended for use by federal officials and PSRO leadership in highlighting design, planning and operation activities that must be accomplished in establishing the foundation for a successful ambulatory review program.

The First Year Questionnaire: Planning

The questionnaire covered four major planning areas: 1) development of the basic conceptual design of the review system, 2) project management (e.g., formation and responsibilities of the project management committee and project staffing requirements), 3) demonstration project relationships with other PSRO organizational units (the PSRO Board and standing committees), and 4) relationships with groups and organizations external to the PSRO (PSRO members and providers associated with the demonstration project as volunteer participants, consultants, and the analysis contractor). The methods used to construct, administer, and analyze the questionnaire are reported on pages 8-12 of Appendix 1, "Interim Report Cooperative Demonstration and Analysis of Ambulatory Care Quality Assurance Review Methodology in PSRO Settings." Data was analyzed across all PSRO projects and findings reported below reflect the opinion of aggregated demonstrated project participants.

The Second Year Questionnaire: Design and Operations

The second questionnaire focused more specifically on the actual success of each site's project design and resultant operation. A substantial number of items were aimed at management and administration issues. Other items questioned resources and funding and methods for topic selection, criteria development, data collection and processing, review and decision making, and intervention. The questionnaire was divided into two sections. Whereas the first year questionnaire was analyzed across all PSRO projects, the second year questionnaire was analyzed both by individual project (Section I) and across projects (Section II). The findings from Section I are reported below; the findings from Section II are found in Volume II of this report.

SYNOPSIS OF FIRST YEAR FINDINGS

Twenty requisites and five additional elements for a planning process were extracted from interviews with 25 ambulatory care quality review system planners participating in five demonstration projects. Overall, 20 requisites (numbered) for planning were identified and five elements (E) came very close to meeting requisite criteria.

1. Involve the PSRo Board in the review of progress reports concerning ambulatory care quality assurance system activities.

E1. Prior approval of ambulatory care quality assurance objectives by the PSRO Board is essential to avoid committing resources to activities that are later abandoned.

Two respondents said that PSRO Board approval for their demonstration projects was obtained on the basis of little information on Board members' part. Since original approval of the project, according to

ten respondents, the Board has not been active in project activities other than receiving reports, primarily at Board meetings. Health Standards and Quality Bureau (HSQB) required Board approval of PSRO participation in the demonstration program. The one PSRO which did not continue to participate in the program did not obtain prior Board approval. Two respondents from this project emphasized the need for Board agreement and approval of project objectives before the initiation of activities in order to avoid wasting resources.

2. Assure that all participants in review system design and operation (PSRO staff, PSRO consultants, the funding agency and the analysis contractor) have a complete and common understanding of PSRO ambulatory care quality assurance system goals, objectives and philosophy.

Eight respondents emphasized the need for all review system planners (PSRO professionals, staff and consultants to the PSRO) to have an early understanding of the goals. They felt this might keep activities peripheral to the goals from draining resources at a later date. One respondent emphasized the need to put the goals in written form to serve as an unambiguous reminder to all throughout the review system planning phase. Another thought that a common understanding was particularly important when the personnel from more than one organization are involved in project design and planning. Respondents also emphasized the need for a common understanding between project participants, the funding agency and the analysis contractor.

3. Attract a core individual or individuals to the review system to assure the continuing momentum of review system design.

Five respondents mentioned the necessity of involving a person or persons with both a well-formulated review system core idea and the time and dedication to devote to nursing that concept through

the stages of review system planning. Such a dedicated leadership is required to provide continuity and assure continuing momentum, and particularly to refine the conceptual base of the review system as project planning progresses. These critical persons are required for assembling staff resources and for interaction with the various physician groups during the review system planning phase. One of the respondents said that as planning progresses and project staff other than core individuals begin to understand the details of the review system concept, the dependence of project planning on this core declines:

4. Attract to the review system planning team a medical leader whose opinion is valued by community physicians.

Four respondents emphasized that the involvement of a medical leader whose opinion is respected by community physicians and by all project planners was important to the planning phase. The medical leader's importance lies in his ability to coordinate the sometimes diverging perspectives of the various project planners. One person who speaks with authority is required to resolve potential conflicts and demonstrate to planners the wisdom of certain resolutions.

5. Define consultant role and tasks as specifically as possible to maximize consultant usefulness to review system planning.

Six respondents felt that consultants outside the PSRO could offer significant assistance to ambulatory care review system planners. Two respondents emphasized the need for the PSRO to specifically define the consultant's tasks and expectations early in the PSRO-consultant relationship.

Three review system planners provided suggestions on how to enhance the usefulness of the analysis contractor in his role as technical consultant during the planning process. While these respondents felt that

the analysis contractor was quite helpful in identifying areas of the project that required clarification, they thought that the contractor should have taken a more active role in helping the planners to resolve these issues. While these particular respondents did not specifically so mention, two others mentioned the need to clarify, at an early date, the role to be assumed by the analysis contractor, especially in the area of technical consultation.

6. Designate one review system planning team member to coordinate and rewrite planning documents, integrating sections produced by various other system designers.

7. Include on the review system planning staff one person at the full-time or nearly full-time level responsible for coordinating the technical activities for daily review system planning.

E2 It is useful to include on the review system planning team a person with skills in system design and knowledgeable in the daily operation of review system activities.

Six respondents saw the need to include a full-time or nearly full-time PSRO staff member to coordinate planning and manage eht operation of the review system; also, as one respondent mentioned, this full-time staff member is needed to attend to the time-consuming tasks and the myriad of details that arise in such an enterprise. Three respondents emphasized the importance of this person having skills in system design and management of day-to-day activities.

8. Emphasize to review system planners that planning activities are evolutionary and that they can expect testing and revision to continue beyond the initial drafting of a system design.

Seven planners mentioned the difficulty of producing planning documents that anticipated the future details of their proposed ambulatory care review systems. Five respondents mentioned that planning

activities would continue beyond the planning phase and into the operational phase. They emphasized that it is impossible during the planning phase to anticipate all the contingencies that might develop in the operation of the review system. One respondent said that concept development is evolutionary, requiring modification as difficulties arise. Others said that alternative solutions to problems that are anticipated during planning can often only be investigated in an operational environment. Two respondents mentioned that while the general review system design and initial steps can be finalized during planning, the details must await operational activities. One respondent thought review system design might entail a trial-and-error process for certain problems.

9. Implement selected feasibility tests of the review system components to enhance planning prior to committing resources to larger-scale operational activities.

Nine respondents said that a feasibility test of some of the uncertainties, utilizing fewer records than the operational review system would later involve, would have been helpful. Commonly suggested review system components for feasibility tests were: 1) the abstract form, and 2) a determination of what data were likely to be found in the ambulatory record and might thus be included for quality review. Four of the nine respondents thought that a limited pilot study of the entire review system would have been helpful, although several viewed the demonstration project itself as a pilot study. The other five respondents felt that since a limited amount of time was provided for the demonstration project, a pilot study of the entire review system was not possible; that the preparation required for such a

test was as extensive as was required for operating the actual demonstration review system and was, therefore, not an efficient use of project resources.

10. Make review system staff aware of the purpose and demands of planning in order that these demands do not dampen their enthusiasm.

E3. Specific deadlines for review system planning and planning documents tend to expedite those activities within busy PSROs.

Two respondents commented on a related issue, the effect that extended planning periods had on project staff. These respondents felt that staff enthusiasm for the demonstration project was jeopardized at times by an inability to investigate, in an operational setting, what everyone perceived were uncertainties concerning project design. One of these respondents as well as a third thought that project interaction with outside monitoring (HSQB and the analysis contractor) should be more intensive over a shorter period of time in order to produce an improved planning process and allow earlier testing of the review system design.

Responses varied concerning the amount of time allotted to writing planning documents. Four respondents felt that a sufficient amount of time was available for the production of the concept paper, the preliminary and the final plans. Six felt that they could have used more time. Three respondents mentioned the difficult and time-consuming tasks of integrating the concerns of everyone participating in project planning (staff, consultants, HSQB and the analysis contractor) into one coherent planning document. Three of those who felt that sufficient time was available for writing documents (planners who were not directly

involved in the writing) thought that if more time had been allotted, the document writing would have consumed that time without producing plans of a higher quality or containing any more detail; these respondents felt that deadlines served the function of expediting organizational activities.

11. Include on a review system management committee representatives of those physicians whose ambulatory care will be reviewed.

E4 Inclusion of key physicians skeptical of ambulatory care quality assurance in management activities can help assure that their skepticism does not become opposition.

Each of the five PSROs participating in the demonstration project formed a management committee to oversee the planning and operation of their review systems. Five respondents mentioned the importance of including on that committee representatives of the physicians whose medical care would be reviewed so that a liaison could be established between the review system and the individual physicians. The liaison, a physician, would convey the concerns of his constituents to the PSRO, guaranteeing communication between the physician community and the ambulatory review system managers. Representatives from hospital staffs, according to the five respondents, can serve as the liaison between the PSRO and community physicians since most physicians are associated with a hospital. Two respondents mentioned that their review system management committee included a physician who had a skeptical attitude toward the review of ambulatory care and who was recruited for the committee to assure that his skepticism did not become opposition.

12. Indicate to planners that they should expect that PSRO members will express little desire to become involved in review system planning activities.

Seven review system planners said that although the PSRO general membership was notified, it expressed little desire to participate in planning activities. Several respondents were surprised that the physician community did not express more negative reactions concerning ambulatory review. Only one respondent stated that a "couple" of PSRO physicians responded by volunteering for project committees. Another respondent elicited little reaction from physicians even after his personal explanations of the project. Five respondents explained that notification usually occurred through the PSRO newsletter, although in two projects the PSRO annual meeting was also used to inform the membership. In either case only a general project description was provided.

E5 Inclusions of the PSRO membership in the design and operation of the ambulatory care quality assurance system should await its testing in order not to arouse premature opposition.

Nine respondents felt that it was premature at this time to involve the PSRO general membership in the details of the design and operation of the ambulatory care review system. These planners felt that the membership should not be involved until review was perfected and a well-developed and tested system could be presented to them. Two of these planners specifically mentioned the danger of arousing opposition to ambulatory review, opposition that would "muddy the waters" for the future and defeat ambulatory review before it had a chance to develop.

Sentiment on this point was not unanimous. One respondent felt that the benefits to be gained by increased membership interest in the PSRO and the ambulatory project were worth risking the potential

opposition that might occur through such involvement. Another felt that should disharmony develop, project planning should include the "loyal opposition." Another respondent from the same project felt that as many physician groups as possible should participate in order to legitimize the project within the medical community.

13. Recruit from the review system and employ as representatives to the physician community those physicians with strong personal ties to the groups of physicians whose ambulatory care will be reviewed.

14. Identify local medical community opinion molders and enlist them as personal ambassadors from the PSRO.

Thirteen respondents emphasized that a critical factor in gaining physician participation in the demonstration project was a personal relationship between a physician representing the review system and the physicians whose ambulatory care was to be reviewed. In all the projects this personal relationship was one that had developed prior to the demonstration project. It was employed in obtaining physician volunteers for the project through letters, telephone calls and actual personal contracts. In the two projects associated with hospitals representatives of medical staffs were used to encourage physician participation in the demonstration project. Members of committees in one project were selected in large measure on the basis of their potential ability to gain the cooperation of physician volunteers. One respondent said that had physicians been asked anonymously to volunteer to have their ambulatory care reviewed they would have refused. The "peer pressure" implied by personal contact with a PSRO physician representative generated the cooperation. Two other respondents mentioned that securing the cooperation of physicians in their areas required repeated personal contact with the potential volunteers.

One project, in an effort to obtain the participation of one physician in a small group practice, actually obtained the participation of all members of that group through contact with the one group member. Five respondents saw the need for PSROs to identify the opinion molders in each locality who would serve as personal ambassadors from the PSRO to the physician and generate support for ambulatory care quality assurance activities. Permission to review the ambulatory care of physicians practicing in the outpatient department of a project hospital was secured through the hospital administration, and each individual physician did not need to be recruited.

15. Emphasize to the participating physician community that the review system will provide the physician with information useful to his practice.

Five respondents felt that one of the best methods of eliciting cooperation from volunteer physicians whose care will be reviewed is to agree to provide the physicians with feedback of review results. One respondent said that volunteers feel that review may be used to gain some knowledge about their practices without any expense on their part. Another felt that it was important to provide feedback as quickly as possible. The importance of providing positive as well as negative feedback to the physician was also emphasized. Some physician volunteers, according to one respondent, made the provision of feedback a condition for their participation.

16. Emphasize to those physicians whose ambulatory care will be reviewed by the quality assurance system that their early and willing cooperation will avoid the imposition of a system from outside the local medical community.

Fourteen respondents felt that an important factor in attracting volunteers to ambulatory review activities was the desire of the physicians themselves to become involved in a physician-led effort to establish ambulatory care quality assurance systems, thus avoiding nonphysician design of systems that may possibly have antithetical consequences for them. Two respondents specifically mentioned physicians' concern with the imposition of an unworkable system by the federal government, one not attumed to local needs. Two other respondents said that the PSRO emphasized to potential volunteers the opportunity to influence, through the demonstration project, the evolving federal policy toward ambulatory care quality assurance. One of these respondents informed volunteers of previous PSRO experiences in influencing policy.

17. Prepare system planners to expect that physicians whose care is being reviewed require few details concerning the technical operation of the review system during the planning phase.

Seven respondents mentioned that the physician volunteers requested general, not detailed, information concerning the proposed review system. This information was supplied to them in both written and verbal form. Two respondents from different projects mentioned that a personal contact session of only 10 or 15 minutes was necessary to explain project objectives and procedures, and few volunteers requested additional detail. One respondent mentioned that volunteers were more concerned with the degree to which review system activities would affect them than with the system's technical details. Another respondent said that volunteers were concerned about what the review system would cost them. Volunteers were interested in what criteria would be used in evaluating their ambulatory care. A respondent from a project associated

with PSRO area hospitals confirmed that the hospitals were also interested in a general, and not a detailed, description of the proposed review system.

18. Prepare system planners to expect that physician volunteers whose ambulatory care is being reviewed will express little interest in participating in the design or the technical activities of operating the review system.

Six respondents said that the physician volunteers were not interested in participating in the design or operation of the ambulatory care review system. Five of these said that none of the volunteers expressed any desire to become involved. The sixth respondent said that a few did express a desire, while other physician volunteers offered suggestions. The majority of volunteers, however, were not interested in the technical details of the review system. One respondent felt that the physicians were comfortable in delegating this responsibility to their project representative. Another felt that they simply did not have the time for such activities and that some mechanism should be created to allow them the level of involvement that their time permits.

19. Assure that review system activities do not interfere with the physician's office routine.

Five respondents mentioned that physician volunteers concerned that review system activities might interfere with office routine. One potential volunteer decided not to participate in the demonstration project because of what he saw as potential disruption to his practice. Two respondents said that this project goal was to demonstrate that effective quality assurance systems can be developed and operated without interfering with office routine.

20. Assure the confidentiality of all physician and patient information.

Nine respondents mentioned that physician volunteers were concerned that the medical record data remain confidential. They were apprehensive about the potential dangers involved in breaching patient privacy by releasing information. Another concern was whether the physician maintained legal custody of the medical information and could release it for quality review activities without risking any patient-initiated legal consequences. One respondent said that volunteers were most concerned about the identification of the physician. Another mentioned that the PSRO anticipated the problem and had assured confidentiality of all data in the initial PSRO letter inviting physicians to participate in the project. Still another stated that this potential problem was mitigated by PSRO confidentiality policies. Two physician respondents felt that the confidentiality issue was not the real issue but was being used by some as an excuse for not participating in quality assurance activities.

SECOND YEAR FINDINGS

Method

Subjects and Questionnaire Development

The subjects for the survey were 87 persons who were involved in various aspects of the demonstration projects in the five sites. For analysis purposes, subjects were classified according to their role in the demonstration project (e.g., PSRO staff or physician, physician or nonphysician consultant, abstractor and other). Also, they were classified according to their level and type of involvement in the project.

The questionnaire was composed of two sections. The first section had 18 objective items where the respondent was requested to circle one of three answer choices which best described their position and then indicate the strength of their position along the continuum from strongly agree to strongly disagree. If respondents felt strongly about a question, they had the option of answering more than one choice.

The second section is comprised of a mixture of 22 open and closed questions. The bulk of these questions focus on describing the PSRO demonstration experience to provide technical assistance to new PSROs beginning ambulatory care review programs.

The questionnaire development began with staff review of over 150 articles, books, and papers on the topic of quality assurance. Each reference was read to extract relevant information on ambulatory care quality assurance. A listing of strengths and weaknesses in conducting ambulatory quality assurance was comprised. Special problems in the evaluation of ambulatory care were also noted within the literature.

HCMS' previous experience with ambulatory care quality assurance projects was then used to build a model for reviewing care rendered in the office setting. The model was comprised of three cycles: screening, action, and restudy. The components of the model consisted of such factors as selection of topics or providers, criteria development, review and decision making, and impact assessment.

From this model HCMS staff developed a list of issues being investigated within each site. These issue lists were site specific but gave a picture of the issues and problem areas facing each of the demonstration sites. From the issue lists a common thread of issues across all sites was determined. HCMS and HSQB staff discussions were also held to review the entire ambulatory care demonstration evaluation effort. Such discussions when combined with the issue lists and model tended to focus survey attention on the future of ambulatory care rather than objectively determining what each site did or didn't do and why.

From this process a list of 76 questions were developed. These questions were all open ended. In order to better quantify some of them and eliminate others, a sample of 32 questions was discussed face to face with a group of people working on the demonstration at one of the sites. HCMS staff reviewed the interpretations given to the questions as well as the responses. The interpretations and points of uncertainty displayed by PSRO personnel were then utilized by HCMS staff to revise the list of questions and convert others to objective (closed ended) questions. This process also assisted in determining relevance of questions as well.

A draft of the survey was prepared in late August, 1978. The HCMS staff critically reviewed the questions and a final draft was prepared on September 1, 1978. A letter soliciting cooperation support from Dr. Michael Goran of HSQB and a personal letter with directions for survey dissemination were mailed to each of the Executive Directors within each site. Each Executive Director was then requested to disseminate the survey together with a self-addressed stamped folder to each of the key people involved in the project. The list of people were derived after HCMS reviewed cost log voucher data from each site and confirmed each list of names with each Executive Director.

Complete packages of surveys and return envelopes were mailed to each Executive Director in the second week of September. A two-week turn around was requested in the letter which accompanied each of the surveys.

A series of follow-up calls from HCMS were required to obtain responses from each of the sites. After seven weeks, data analysis began and no more questionnaires were accepted.

The final response rate was 44 or 51%. The majority of those nonrespondents were physicians who served as consultants to the project in its beginning stages.

Data Analysis

For each individual project, responses in Section I of the questionnaire were tallied on a three-point scale; choices 1 and 2 (agree) and 4 and 5 (disagree) were collapsed. Since several items were mutually exclusive, if a respondent had conflicting responses indicating he did not understand the item, these responses were eliminated from the data

base. From a total response rate of 1,274 the usable responses totaled 1,203. For each item, the response rate for agree, undecided, and disagree is reported.

Additional analysis examined differences between physician and nonphysician responses for those items where there was at least two responses in both the agree and disagree categories. The analysis included only those individuals who were classified as either a PSRO staff physician or physician consultant and a PSRO staff nonphysician, nonphysician consultant or subcontractor consultant. Also included were only those individuals who were rated as being involved in all or at least four phases of demonstration development.

Analysis of Section II of the questionnaire included reading the open-ended responses and synthesizing meaning into appropriate categories, depending on the nature of the question. The close-ended questions in Section II were tallied with no changes in the response categories.

Discussion of Survey Findings (Section I)

Presented in Table 2, "Survey Items and Responses: Central Massachusetts PSRO," are the 18 questions along with the total responses per question. Twenty-three questionnaires were sent to the PSRO and 9 were returned. The total responses were 309, 27 of which were not usable, leaving total usable responses of 282.

Central Massachusetts PSRO respondents agreed that their project is a combination of research design and implementation of an operational review system (items 1 and 2). However, respondents were split on the question of whether, while conducting research, review of others research findings was necessary (item 5). Respondents agreed that use of voluntary participants is invaluable to their ambulatory demonstration project (item 3).

In regards to the goals of an ambulatory care review system, agreement was reached on the goal of improving care rendered to all patients as well as helping to contain health care costs (items 4 and 11). Although it is not clear whether review systems can be made cost effective, the system should review the entire mainstream of care rather than just those physician practice patterns which differ significantly from the practice norms of the area (item 9). Respondents agree that review should focus on those topics which have the greatest potential for improving the patient's health, be chosen according to data accessibility and frequency of occurance and determined by physician members of the PSRO peer review committees (item 12). They believe that review of nonphysician services should be integrated into the review system eventually (item 14). Respondents were somewhat split on the question of whether criteria should focus on both over and underutilization of medical services (item 17) but agree that the ultimate goal of a new system is to encourage physician compliance to standards (item 18).

Concerning staff resources, respondents believed that little or no technical assistance from outside the PSRO was needed although the technical assistance provided to them did not appear to completely suit their needs (item 6).

The feasibility issue was raised in several questions. Respondents were split on the question of whether ambulatory care review is feasible, whether the methods tested in the PSRO could be transferred (items 8, 13 and 15). Responses regarding the best approach to changing physician behavior patterns were varied and the majority of respondents believe more research on this issue must be undertaken (item 10).

An additional analysis was conducted on those questions which showed disagreement among respondents. The items were analyzed where either two or more respondents appeared to disagree (e.g., at least two or more responses in the "agree" category and at least two or more responses in the "disagree" category). Analysis was conducted to determine whether disagreement may have occurred due to difference of opinion between physicians and nonphysicians who had been heavily involved in the entire project. Respondents substantially disagreed on seven items (39%), however, analysis did not clearly indicate differences between the physicians and nonphysicians.

TABLE 2

SURVEY ITEMS AND RESPONSES: CENTRAL MASSACHUSETTS PSRO

1. a) Our demonstration is a research project wherein data collection will assist in performing subsequent ambulatory care studies.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	0	1

b) We are interested only in the development of an operational ambulatory care review system for improving quality of care rendered in our area.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	0	2

c) Our demonstration is a combination of research design and implementation of an operational review system. We believe one must conduct adequate front end investigation prior to implementation.

TOTAL RESPONSES		
Agree	Undecided	Disagree
8	0	0

2. a) In view of the problems in measurement, conducting research on ambulatory care is unlikely to produce meaningful results.

AND

b) The prime emphasis of any PSRO should be on development of an operational quality assurance project, research is not likely to result in improved patient care in the practice settings.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	3	5

c) A PSRO must conduct research to better understand the problem before an operational program to resolve the program can be implemented.

TOTAL RESPONSES		
Agree	Undecided	Disagree
7	0	0

3. a) In our ambulatory demonstration project, the use of volunteer subjects has been invaluable. No study of ambulatory quality assurance could be completed without voluntary participants.

TOTAL RESPONSES		
Agree	Undecided	Disagree
6	0	0

b) Using physicians who volunteer their office data is a practical solution to a practical problem (obtaining practice data from a physician's office). In most instances, there is no other choice.

TOTAL RESPONSES		
Agree	Undecided	Disagree
6	1	1

c) The use of volunteers introduces a bias into the results of any study which limit the generalizability of the findings to the practices studied and reduces the potential for using results in HSQB policy development.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	1	1

4. The purpose of a well constructed PSRO ambulatory care review system is:

a) To improve the care rendered to all patients in its area.

TOTAL RESPONSES		
Agree	Undecided	Disagree
5	0	0

b) Change physician practice patterns which, in turn, would impact upon the care rendered to patients in the area.

TOTAL RESPONSES		
Agree	Undecided	Disagree
4	0	1

c) To improve the quality of care rendered to patients in the office setting as well as certain health care costs.

TOTAL RESPONSES		
Agree	Undecided	Disagree
6	2	1

5. a) In conducting an ambulatory care quality assurance demonstration, reliance on the research findings of others is useful but not mandatory.

AND

b) PSROs beginning ambulatory projects should place little reliance on the work of others in establishing a review program, most of our concepts were self generated to accommodate the unique characteristics of our geographic area.

TOTAL RESPONSES		
Agree	Undecided	Disagree
3	1	4

c) It is necessary to conduct a complete literature search to review the findings of others prior to starting any research or demonstration project.

TOTAL RESPONSES		
Agree	Undecided	Disagree
4	1	2

6. a) Our staff resources were such that little or no technical assistance from outside the PSRO was needed.

TOTAL RESPONSES		
Agree	Undecided	Disagree
3	0	0

b) In launching an ambulatory care demonstration project heavy emphasis should be placed upon the expertise of various outside consultants for the first two years.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	2	0

c) The technical assistance provided through HSQB and HCMS served all of our technical assistance needs during the demonstration.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	4	4

7. a) The amount of seriously substandard ambulatory care cannot accurately be assessed based upon our demonstration experience thus far. It is too soon to tell.

TOTAL RESPONSES		
Agree	Undecided	Disagree
3	1	0

b) Substandard care in the ambulatory sector is pervasive and can be found to a greater or lesser degree in most office practices.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	2	4

c) From our experience thus far it appears that the degree of substandard ambulatory care is fairly low reflecting only a small percentage of physicians.

TOTAL RESPONSES		
Agree	Undecided	Disagree
7	1	0

8. a) Many illnesses treated in the ambulatory sector are ill defined, self-limiting conditions for which there are no clearly accepted therapeutic regimes. As such, review of ambulatory care is not feasible.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	2	3

b) Quality assurance in ambulatory care is no different than any other form of care, it exists in finite amounts and those amounts can be measured just the same as inpatient care can be.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	1	4

c) From our experience as an ambulatory demonstration site, it seems quite feasible to implement quality assurance programs for ambulatory care on a nationwide basis.

TOTAL RESPONSES		
Agree	Undecided	Disagree
3	2	0

9. a) An ambulatory quality assurance program should look at just those physician practice patterns which differ significantly from practice norms for each area.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	1	3

b) An ambulatory quality assurance program should look at the entire mainstream of care and seek to optimize the practices of as many doctors as possible.

TOTAL RESPONSES		
Agree	Undecided	Disagree
5	3	0

c) At this time, it is not possible to say whether ambulatory quality assurance programs can be made cost effective enough to review the entire spectrum of ambulatory care.

TOTAL RESPONSES		
Agree	Undecided	Disagree
7	0	0

10. a) Changing practice behavior is best achieved by direct practice pattern feedback to each practitioner being reviewed.

TOTAL RESPONSES		
Agree	Undecided	Disagree
1	1	0

b) Feedback comparing individual practices to a norm or standard results in physician defensiveness and resistance. The best way to change practice behavior is through education and general feedback to groups of physicians without individual comparisons.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	2	1

c) The best approach to changing physician practice patterns for purposes of quality assurance is not known at present, more research on this issue must be undertaken.

TOTAL RESPONSES		
Agree	Undecided	Disagree
4	2	0

11. a) Cost containment and quality assurance are totally mutually exclusive and cannot be dealt with simultaneously in ambulatory quality assurance efforts.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	0	3

b) The primary purpose of a PSRO quality assurance project is to improve patients care regardless of the cost implications.

TOTAL RESPONSES		
Agree	Undecided	Disagree
1	0	3

c) Ambulatory quality assurance while emphasizing improved patient outcomes must also consider cost effectiveness in patient care if the PSRO program is to survive.

TOTAL RESPONSES		
Agree	Undecided	Disagree
7	1	0

12. a) Ambulatory care review should focus on those topics which have the greatest potential for improving the patient's health.

TOTAL RESPONSES		
Agree	Undecided	Disagree
7	1	0

b) Review topics in ambulatory care must be chosen according to data accessibility, and frequency of occurrence in the primary setting.

TOTAL RESPONSES		
Agree	Undecided	Disagree
5	1	0

c) Review topics are best developed by focusing on specific practice problems determined by physician members of PSRO peer review committees.

TOTAL RESPONSES		
Agree	Undecided	Disagree
4	1	1

13. a) The approach we have used to conduct ambulatory quality assurance will be acceptable and feasible in conducting review for all physicians.

TOTAL RESPONSES		
Agree	Undecided	Disagree
5	3	1

b) Our demonstration approach is quite unique and unlikely to be duplicated to the point where it would be acceptable to physicians in other PSRO areas.

TOTAL RESPONSES		
Agree	Undecided	Disagree
1	2	2

c) The approach we used in conducting ambulatory quality assurance has been largely unacceptable to physicians.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	1	4

14. a) The integration of review for ambulatory services rendered by nonphysicians with existing PSRO efforts is not feasible at this time.

TOTAL RESPONSES		
Agree	Undecided	Disagree
4	1	1

b) As the trend toward holistic patient care increases, the necessity of reviewing nonphysician treatment will become necessary sometime in the future.

TOTAL RESPONSES		
Agree	Undecided	Disagree
6	1	0

c) Incorporating the work done by nonphysician practitioners into the peer review process is quite feasible and could be undertaken immediately.

TOTAL RESPONSES		
Agree	Undecided	Disagree
2	1	2

15. a) The procedures for ambulatory quality assurance developed in our demonstration are transferrable to any other PSRO without modification or special arrangements.

TOTAL RESPONSES		
Agree	Undecided	Disagree
1	4	2

b) The nature of our demonstration is quite unique and it is unlikely that our approach could ever be duplicated in another PSRO.

TOTAL RESPONSES		
Agree	Undecided	Disagree
0	1	3

c) Transferrence of our ambulatory quality assurance procedures to other PSROs while achievable would entail much effort and very probably modification of arrangements and procedures.

TOTAL RESPONSES		
Agree	Undecided	Disagree
4	1	1

16. Problems uncovered in practices with respect to one review topic are often associated with problems in other topics.

TOTAL RESPONSES		
Agree	Undecided	Disagree
4	5	0

17. The criteria developed for each review topic should focus upon over and underutilization of medical services simultaneously.

TOTAL RESPONSES		
Agree	Undecided	Disagree
6	3	0

18. The ultimate goal of an ambulatory quality assurance review system is to develop standards and criteria, compare practice patterns to them and then encourage compliance where variations exist.

TOTAL RESPONSES		
Agree	Undecided	Disagree
7	1	1

SECTION IV

QUANTITATIVE PROGRAM DESCRIPTORS

METHOD

Requests for quantitative descriptions tailored to fit the specific programs of each of the five projects were sent out in August 1978. Requested data involved population and activity items for the sites under study by the projects including such items as the number of hospitals, clinics, physicians, patients and patient visits at these sites. Tabulations were requested of physicians by specialty and patients by source of payment. In addition quantitative descriptors of the review activities were requested. These included numbers of physicians and patients reviewed by topic and the number of patient visits involved. Finally, distribution of the variations or exceptions to review criteria were requested along with quantitative description of the feedback and intervention function of the project. Other data of specific significance to individual projects was also included in the requests.

Quantitative data reports submitted by the projects in response to these requests were screened by HCMS personnel for completeness and consistency and follow up was made by telephone to make the data as valid as possible. Some requested data could not be supplied by the project because it was not available at the sites studied. Only data available as of August 31, 1978 were used and some sites were in the midst of the review cycle at that time. The quantitative data that was submitted by the five projects was formatted by HCMS staff into tabular form designed to be as consistent as possible among projects but still displaying the unique qualities of the individual project.

SITES AND PHYSICIANS REVIEWED

One hospital and three ambulatory sites were involved in the study. While the number of hospital admissions per year and number of clinic visits per year of the participating sites are not available to this report, a total of 89 physicians were identified by the study as admitting patients to the hospital, 51 identified with one of the three ambulatory sites and 38 for which the ambulatory sites was not identified and no ambulatory data was available. A tabulation of these providers by specialty is shown in Table 3A.

CASES AND PATIENT VISITS REVIEWED

Six hundred ten case records were abstracted for the study involving 661 hospital admissions and 609 ambulatory visits at one of the ambulatory sites. Distribution of these cases by site and source of payment are given in Table 3B. Distribution of the 51 physicians with cases reviewed is given in Table 4 with breakdown by topic and site. Table 4 also provides similar distributions of cases and patient visits for cases reviewed. Table 5 gives a further breakdown of the topic distribution by stage. Staging criteria for the various topics are given in Appendix B.

TABLE 3A. NUMBER OF PHYSICIANS BY FACILITY

Specialty	Hospital	Ambulatory Sites				Site Not Identified
		A	B	Other*	Total	
General Practice	5					5
Family Practice	5			2	2	3
Internal Medicine	32	7	5	7	19	13
General Surgery	17	4	2	2	8	9
Cardiology	5	3	1	1	5	
Gastroenterology	6	3	2	1	6	
Oral Surgery	1					1
Orthopedic Surgery	1					1
Physical Medicine	1					1
Pulmonary Diseases	5	2		3	5	
Thoracic Surgery	1					1
Urology	1					1
PEDs	5	2			2	3
Nephrology	1		1		1	
Endocrinology	2	1		1	2	
Diabetes	1			1	1	
TOTAL	89	22	11	18	51	38

*Solo and Hospital based practice.

TABLE 3B. NUMBER OF CASES BY SOURCE OF PAYMENT (Hospitalization)

Source	Hospital	Ambulatory Sites				Site Not Identified
		A	B	Other	Total	
Medicare	310	81	39	175	295	15
Medicaid	28	6	0	16	22	6
Other	228	85	22	116	223	5
Unknown Source	44	14	13	14	41	3
TOTAL	610	186	74	321	581	29
TOTAL PATIENT VISITS	661	316	74	219	609	

TABLE 4A. NUMBER OF PHYSICIANS* REVIEWED BY SITE TABULATED BY TOPIC

Topic	Hospital	Ambulatory Sites A	B	Other**	Total
1. Chronic Obstructive Lung Disease	40	9	6	25	40
2. Diabetes	44	16	6	22	44
3. Congestive Heart Failure	41	11	6	24	41
4. Cancer of the Breast	37	9	9	19	37
5. Cancer of the Colon/Rectum	42	14	11	17	42
TOTAL	204	59	38	107	204

* 51 individual physicians were reviewed, many for more than one topic

** Includes solo and hospital based practitioners

TABLE 4B. NUMBER OF CASES REVIEWED AT EACH SITE DURING STUDY TABULATED BY TOPIC

Topic	Hospital	Ambulatory Sites				Site Not Identified
		A	B	Other*	Total	
1. Chronic Obstructive Lung Disease	137	26	8	94	128	9
2. Diabetes	133	50	11	68	129	4
3. Congestive Heart Failure	170	44	18	99	161	9
4. Cancer of the Breast	86	30	21	34	85	1
5. Cancer of the Colon/Rectum	84	36	16	26	78	6
TOTAL	610	186	74	321	581	29

*Solo and hospital based practices.

TABLE 4C. NUMBER OF PATIENT VISITS AND HOSPITALIZATIONS REVIEWED AT EACH SITE TABULATED BY TOPICS

Topic	Hospital	Ambulatory Sites			
		A	B	Other*	Total
1. Chronic Obstructive Lung Disease	149	39	13	74	126
2. Diabetes	139	90	22	70	182
3. Congestive Heart Failure	196	88	19	47	154
4. Cancer of the Breast	90	33	9	17	59
5. Cancer of the Colon/Rectum	87	66	11	11	88
TOTAL	661	316	74	219	609

*Includes private offices and hospital-based practices, but not outpatient clinic.

TABLE 5A. NUMBER OF CASES REVIEWED AT EACH SITE BY STAGE (at Reference Admission only)

TOPIC: CHRONIC OBSTRUCTIVE LUNG DISEASE

Stage		Hospital	Ambulatory Sites				Site Not Identified
			A	B	Other*	Total	
IA	Symptoms No Limit Of Daily Activity	11	4	0	7	11	0
IB	IA and Respiratory Infection	1	0	0	1	1	0
IIA	Moderate Limitations	29	7	2	19	28	1
IIB	IIA and Resp. Inf. or Sputum Prod.	22	3	0	17	20	2
III	Symptom At Rest	47	9	5	29	43	4
IV	III and Complications	27	3	1	21	25	2
	TOTAL	137	26	8	94	128	9

*Private and hospital-based practices.

TABLE 5B. NUMBER OF CASES REVIEWED AT EACH SITE BY STAGE (at Reference Admission only)

TOPIC: DIABETES

Stage		Hospital	Ambulatory Sites				Site Not Identified
			A	B	Other*	Total	
IA	Uncomplicated/Diet	7	3	0	4	7	0
IB	Uncomplicated/Insulin	2	1	0	1	2	0
II	Secondary Complication	48	18	5	23	46	2
III	Mild Ketaocidosis	60	24	6	30	60	0
IV	Severe Ketaocidosis	16	4	0	10	14	2
	TOTAL	133	40	11	68	129	4

*Private and hospital-based practices.

TABLE 5C. NUMBER OF CASES REVIEWED AT EACH SITE BY STAGE (at Reference Admission only)

TOPIC: CONGESTIVE HEART FAILURE

Stage	Hospital	Ambulatory Sites				Site Not Identified
		A	B	Other*	Total	
I Symptoms with Moderate Exercise						
II Symptoms with Everyday Activity	39	13	3	23	39	
III Symptoms at Rest	101	24	10	61	95	6
IV Stage III Plus Pulmonary Edema	30	7	5	15	27	3
TOTAL	170	44	18	99	161	9

*Private and hospital-based practices.

TABLE 5D. NUMBER OF CASES REVIEWED AT EACH SITE BY STAGE (at Reference Admission only)

TOPIC: CANCER OF THE BREAST

Stage		Hospital	Ambulatory Sites				Site Not Identified
			A	B	Other*	Total	
I	Size of Mass < 2.5 CM	21	9	5	7	21	0
II	Size of Mass > 2.5 CM	27	8	9	9	26	1
III	Nodes, Fixed or Mobile	34	12	5	17	37	0
IV	Distant Metastasis	4	1	2	1	4	0
	TOTAL	86	30	21	34	85	1

*Private and hospital-based practices.

TABLE 5E. NUMBER OF CASES REVIEWED AT EACH SITE BY STAGE (at Reference Admission only)

TOPIC: CANCER OF THE COLON/RECTUM

Stage		Hospital	Ambulatory Sites				Site Not Identified
			A	B	Other*	Total	
IA	Confined to Submucosa	3	2	0	1	3	0
IIA	Into Muscle	27	7	4	12	23	4
IIB	Through Muscle to Serosa						
III	Nodes Involved	31	13	9	7	29	2
IV	Distant Metastasis	19	13	2	4	19	0
In Situ		4	1	1	2	4	0
	TOTAL	84	36	16	26	78	6

*Private and hospital-based practices.

SECTION V

DISCUSSION OF REVIEW DATA

METHOD

A five percent sample of abstracts and corresponding data code sheets was requested for each topic studied by the project. HCMS received 101 such abstracts comprising a 16.5% sample. Of interest was the frequency with which data items specified by the criterion appeared on the abstracts and a comparison of these rates of data availability between ambulatory and hospital data sources. The rate of data availability is defined as the number of charts in which the particular data item was noted divided by the total number of charts abstracted, expressed as a percent.

FREQUENCY OF DATA ELEMENTS

Table 6 lists abstracted data items associated with criteria for each of the five topics studied. Organization is by topic for which are shown:

1. Number of cases studied
2. Number of cases in HCMS sample
3. Number of ambulatory visits noted in HCMS sample
4. Number of hospital admissions noted in HCMS sample
5. Total encounters (sum of 3 and 4)

Criteria/Data Items are listed according to the following categories (as supplied by the PSRO):

A. Subjective
B. Objective
C. Laboratory (includes other diagnostic procedures)
D. Management/Treatment/Medications

These criteria/data items are summarized below:

TOPIC	Subj	Obj	Lab	Mgmt	Total
1. C.O.L.D.	8	5	5	3	21
2. Diabetes	5	6	5	5	21
3. C.H.F.	5	8	2	5	20
4. CA-Breast	4	2	4	1	11
5. Colon/Rectal CA	8	3	5	1	17
TOTAL	30	24	21	15	90

Numbers and percents of patients and encounters are presented for ambulatory, hospital and all abstracts for each data item.

A staging summary is also provided for each topic showing numbers and percents of ambulatory encounters, hospital admission and discharges for each stage.

All data was taken from a random sample of 101 abstracts and coding sheets provided by the PSRO. This sample comprised about 17% of the 610 cases abstracted.

TABLE 6A. FREQUENCIES OF DATA ELEMENTS

IN HCMS SAMPLE

CHRONIC OBSTRUCTIVE LUNG DISEASE
Cases: 137
Sample: 20
Ambulatory Visits: 26
Hospital Admission: 21
Total Encounters: 47

CRITERIA/DATA ITEM	Number of Patients (Percent)			Number of Encounters (Percent)		
	Amb	Hosp	Total	Amb	Hosp	Total
A. Subjective						
1. Dypsnea	9(45)	20(100)	20(100)	13(50)	21(100)	34(72)
2. Sputum Prod.	3(15)	17 (85)	17 (85)	5(19)	18 (86)	23(49)
3. Activity Limits	5(25)	18 (90)	18 (90)	7(27)	19 (90)	26(55)
4. Smoking Hist.	2(10)	16 (80)	16 (80)	2 (8)	17 (81)	19(40)
5. Febrile Illness	0 (0)	20(100)	20(100)	0 (0)	21(100)	21(45)
6. Allergy	0 (0)	20(100)	20(100)	0 (0)	21(100)	21(45)
7. Cough	3(15)	18 (90)	18 (90)	4(15)	19 (90)	23(49)
8. Wheezing	2(10)	20(100)	20(100)	2 (8)	21(100)	23(49)
MEAN	(15)	(93)	(93)	(16)	(93)	(51)
B. Objective						
1. Pulse	6(30)	20(100)	20(100)	8(31)	21(100)	29(62)
2. Cyanosis	1 (5)	20(100)	20(100)	1 (4)	21(100)	22(47)
3. Chest Findings	8(40)	20(100)	20(100)	11(42)	21(100)	32(68)
4. Resp. Rate	2(10)	20(100)	20(100)	2 (8)	21(100)	23(49)
5. Clubbing	1 (5)	16 (80)	16 (80)	1 (4)	17 (81)	18(38)
MEAN	(18)	(96)	(96)	(18)	(96)	(53)
C. Laboratory						
1. Chest X-Ray	3(15)	20(100)	20(100)	3(12)	21(100)	24(51)
2. Blood Count	3(15)	20(100)	20(100)	3(12)	21(100)	24(51)
3. Pulm. Function Test	3(15)	14 (70)	14 (70)	3(12)	13 (62)	16(34)
4. Blood Gas	2(10)	13 (65)	13 (65)	2 (8)	14 (67)	16(34)
5. EKG	4(20)	20(100)	20(100)	4(15)	20 (95)	24(51)
MEAN	(15)	(87)	(87)	(12)	(83)	(44)
D. Mgmt/Treatment						
1. Medications	12(60)	20(100)	20(100)	22(85)	21(100)	43(91)
2. Home Oxygen	4(20)	5 (25)	6 (30)	8(31)	5 (24)	13(28)
3. Hospitalization	3(15)	20(100)	20(100)	3(12)	21(100)	24(51)
MEAN	(32)	(75)	(77)	(42)	(75)	(57)
MEAN PERCENTS	(18)	(90)	(90)	(19)	(89)	(50)

TABLE 6A (CONT'D). CHRONIC OBSTRUCTIVE LUNG DISEASE

Cases: 137
Sample: 20

Ambulatory Visits 26
Hospital Admissions 21
Total Encounters 47

Staging Summary	Ambulatory Number of Encounters	%	Hospital Number of Admissions	%	Number of Discharges	%
IA. Symptoms no Limit of Daily Act.	8	31	3	14	14	67
IB. IA and Respiratory Infection	0	0	0	0	0	0
IIA. Moderate Limitations	11	42	3	14	2	9
IIB. IIA and Respiratory Infection or Sputum Prod.	1	4	4	19	0	0
III. Symptom at Rest	2	8	6	29	3	14
IV. III and (Complications)	0	0	5	24	0	0
Expired	0	0	0	0	1	5
Not Recorded	4	15	0	0	1	5
TOTAL	26	100	21	100	21	100

TABLE 6B. FREQUENCIES OF DATA ELEMENTS

IN HCMS SAMPLE

DIABETES MELLITUS — Cases: 133, Sample: 20; Ambulatory Visits: 25, Hospital Admission: 21, Total Encounters: 46

CRITERIA/DATA ITEM	Number of Patients (Percent)			Number of Encounters (Percent)		
	Amb	Hosp	Total	Amb	Hosp	Total
A. Subjective						
1. Polyuria	3(15)	7 (35)	7 (35)	3 (12)	7 (33)	10(22)
2. Polydypsia	3(15)	7 (35)	7 (35)	3 (12)	7 (33)	10(22)
3. Weight Change	4(20)	11 (55)	11 (55)	4 (16)	11 (52)	15(33)
4. Fatigue	2(10)	14 (70)	14 (70)	2 (8)	14 (67)	16(35)
5. Recur. Infection	2(10)	3 (15)	5 (25)	2 (8)	3 (14)	5(11)
MEAN	(14)	(44)	(44)	(11)	(40)	(24)
B. Objective						
1. Weight	11(55)	20(100)	20(100)	16(64)	20 (95)	36(78)
2. Blood Pressure	7(35)	20(100)	20(100)	10(40)	21(100)	31(67)
3. Fundi	4(20)	20(100)	20(100)	4(16)	21(100)	35(76)
4. Pulses	5(25)	20(100)	20(100)	5(20)	21(100)	36(78)
5. Neurologic Exam	4(20)	20(100)	20(100)	4(16)	21(100)	35(76)
6. Skin Exam	6(30)	20(100)	20(100)	6(24)	21(100)	37(80)
MEAN	(31)	(100)	(100)	(30)	(99)	(76)
C. Laboratory						
1. UA or Bld. Gl. or GTT	12(60)	20(100)	20(100)	17(68)	21(100)	38(83)
2. BUN	2(10)	20(100)	20(100)	2 (8)	21(100)	23(50)
3. Chest X-Ray	1 (5)	18 (90)	19 (95)	1 (4)	19 (90)	20(43)
4. Electrolytes	0 (0)	17 (85)	17 (85)	0 (0)	18 (86)	18(39)
5. Urine Analysis	8(40)	20(100)	20(100)	9(36)	21(100)	30(65)
MEAN	(23)	(95)	(96)	(23)	(95)	(56)
D. Mgmt/Treatment						
1. Diet	3(15)	20(100)	20(100)	4(16)	21(100)	25(54)
2. Oral Hypogl.	2(10)	3 (15)	4 (20)	4(16)	3 (14)	7(15)
3. Insulin	5(25)	18 (90)	18 (90)	6(24)	19 (90)	25(54)
4. Consults.	1 (5)	13 (65)	14 (70)	1 (4)	14 (67)	15(33)
5. Hospitalization	7(35)	20(100)	20(100)	7(28)	21(100)	28(61)
MEAN	(18)	(94)	(96)	(18)	(74)	(43)
MEAN PERCENTS	(22)	(84)	(85)	(21)	(78)	(51)

TABLE 6B (CONT'D). DIABETES MELLITUS

Cases:	133	Ambulatory Visits	25
Sample:	20	Hospital Admissions	21
		Total Encounters	46

Staging Summary	Ambulatory		Hospital			
	Number of Encounters	%	Number of Admissions	%	Number of Discharges	%
IA. Uncomplicated/Diet	0	0	0	0	1	5
IB. Uncomplicated/Insulin	2	8	0	0	9	43
II. Secondary Complication	5	20	7	33	9	43
III. Mild Ketaocidosis	4	16	12	57	2	10
IV. Severe Ketaocidosis	0	0	2	10	0	0
Expired	0	0	0	0	0	0
Not Recorded	14	56	0	0	0	0
TOTAL	25	100	21	100	21	101

TABLE 6C. FREQUENCIES OF DATA ELEMENTS

IN HCMS SAMPLE

CONGESTIVE HEART FAILURE
Cases: 170
Sample: 30

Ambulatory Visits: 37
Hospital Admission: 34
Total Encounters: 71

CRITERIA/DATA ITEM	Number of Patients (Percent)			Number of Encounters (Percent)		
	Amb	Hosp	Total	Amb	Hosp	Total
A. Subjective						
1. Dypsnea	3(10)	30(100)	30(100)	4(11)	34(100)	38(54)
2. Orthopnea	1 (3)	29 (97)	29 (97)	1 (3)	33 (97)	34(48)
3. Weight Change	0 (0)	27 (90)	27 (90)	0 (0)	31 (91)	31(44)
4. Edema	4(13)	30(100)	30(100)	4(11)	34(100)	38(54)
5. Chest Pain	0 (0)	30(100)	30(100)	0 (0)	34(100)	34(48)
MEAN	(5)	(97)	(97)	(5)	(98)	(49)
B. Objective						
1. Blood Pressure	9(30)	30(100)	30(100)	23(62)	34(100)	57(80)
2. Heart Rate	8(27)	30(100)	30(100)	11(30)	34(100)	45(63)
3. Rales	9(30)	30(100)	30(100)	14(38)	34(100)	48(68)
4. Gallop Rhythms	8(27)	30(100)	30(100)	9(24)	34(100)	43(61)
5. Edema	11(37)	30(100)	30(100)	18(49)	34(100)	52(73)
6. Neck/Vein Dist.	2 (7)	30(100)	30(100)	2 (5)	34(100)	36(51)
7. Enlarged Liver	5(17)	30(100)	30(100)	8(22)	34(100)	42(59)
8. Office Weights	6(20)	22 (73)	22 (73)	20(54)	24 (71)	44(62)
MEAN	(24)	(97)	(97)	(35)	(96)	(65)
C. Laboratory						
1. Chest X-Ray	2 (7)	30(100)	30(100)	2 (5)	34(100)	36(51)
2. EKG	0 (0)	29 (97)	29 (97)	0 (0)	33 (97)	33(46)
MEAN	(3)	(98)	(98)	(3)	(99)	(49)
D. Mgmt/Treatment						
1. Weight	6(20)	25 (83)	25 (83)	18(49)	27 (79)	45(63)
2. Digitalis	4(13)	28 (93)	28 (93)	6(16)	32 (94)	38(54)
3. Diuretics	7(23)	28 (93)	28 (93)	19(51)	32 (94)	51(72)
4. Sodium Restr.	2 (7)	28 (93)	28 (93)	2 (5)	32 (94)	34(48)
5. Hospitalization	3(10)	30(100)	30(100)	3 (8)	34(100)	37(52)
MEAN	(15)	(93)	(93)	(26)	(92)	(58)
MEAN PERCENTS	(15)	(96)	(96)	(22)	(96)	(57)

TABLE 6C (CONT'D). CONGESTIVE HEART FAILURE

Cases: 170
Sample: 30

Ambulatory Visits 37
Hospital Admissions 34
Total Encounters 71

Staging Summary	Ambulatory Number of Encounters	%	Hospital Number of Admissions	%	Number of Discharges	%
I. Symptoms with Moderate Exercise	13	35	1	3	13	38
II. Symptoms with Everyday Activity	20	54	7	21	13	38
III. Symptoms at Rest			16	47	3	9
IV. Most Severe			10	29		
Expired					5	15
Not Recorded	4	11				
TOTAL	37	100	34	100	34	100

TABLE 6D. FREQUENCIES OF DATA ELEMENTS

IN HCMS SAMPLE

CANCER OF THE BREAST

Cases: 86
Sample: 16

Ambulatory Visits: 16
Hospital Admission: 16
Total Encounters: 32

CRITERIA/DATA ITEM	Number of Patients (Percent)			Number of Encounters (Percent)		
	Amb	Hosp	Total	Amb	Hosp	Total
A. Subjective						
1. Breast Mass	7(44)	16(100)	16(100)	9(56)	16(100)	25(78)
2. Nipple Discharge	0 (0)	16(100)	16(100)	0 (0)	16(100)	16(50)
3. Skin Changes	1 (6)	16(100)	16(100)	1 (6)	16(100)	17(53)
4. Other Masses or Nodes	2(13)	16(100)	16(100)	2(13)	16(100)	18(56)
MEAN	(16)	(100)	(100)	(19)	(100)	(59)
B. Objective						
1. Breast Exam	10(63)	16(100)	16(100)	14(88)	16(100)	30(94)
2. Other Masses or Nodes	6(38)	16(100)	16(100)	6(38)	16(100)	22(69)
MEAN	(50)	(100)	(100)	(63)	(100)	(81)
C. Laboratory						
1. Mammography	4(25)	7 (44)	10 (63)	4(25)	7 (44)	11(34)
2. Xereography	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
3. Smear	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
4. Aspiration	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)
MEAN	(6)	(11)	(16)	(6)	(11)	(9)
D. Mgmt/Treatment						
1. Hosp. for Confirm.	5(31)	16(100)	16(100)	5(31)	16(100)	21(66)
MEAN	(31)	(100)	(100)	(31)	(100)	(66)
MEAN PERCENTS	(20)	(68)	(69)	(23)	(68)	(45)

TABLE 6D (CONT'D). CANCER OF THE BREAST*

Cases:	86	Ambulatory Visits	16
Sample:	16	Hospital Admissions	16
		Total Encounters	32

Staging Summary	Ambulatory		Hospital			
	Number of Encounters	%	Number of Admissions	%	Number of Discharges	%
I. Local Disease			2	13		
II. Lymph Node Mestastases			6	38		
III. Distant Mestastases			8	50		
Expired			0	0		
Not Recorded	16	100	0	0	16	100
TOTAL	16	100	16	101	16	100

*Ambulatory encounters for cancer patients were not staged.

TABLE 6E. FREQUENCIES OF DATA ELEMENTS

IN HCMS SAMPLE

COLON/RECTAL CANCER

Cases: 84
Sample: 15

Ambulatory Visits: 23
Hospital Admission: 15
Total Encounters: 38

CRITERIA/DATA ITEM	Number of Patients (Percent)			Number of Encounters (Percent)		
	Amb	Hosp	Total	Amb	Hosp	Total
A. Subjective						
1. Chg. in Bowel Habits	3(47)	11(73)	12 (80)	8(35)	11 (73)	19(50)
2. Black Stools	2(13)	12 (80)	12 (80)	2 (9)	12 (80)	14(37)
3. Abdom. Mass.	2(13)	14 (93)	14 (93)	2 (9)	14 (93)	16(42)
4. Abdom. Distent.	2(13)	14 (93)	14 (93)	2 (9)	14 (93)	16(42)
5. Weakness	2(13)	14 (93)	14 (93)	2 (9)	14 (93)	16(42)
6. Weight Loss	4(27)	11 (73)	12 (80)	5(22)	11 (73)	16(42)
7. Abdom. Pain	4(27)	12 (80)	12 (80)	4(17)	12 (80)	16(42)
8. Rectal Bleeding	7(47)	14 (93)	14 (93)	7(30)	14 (93)	21(55)
MEAN	(22)	(85)	(87)	(17)	(85)	(44)
B. Objective						
1. Pallor	2(13)	15(100)	15(100)	2 (9)	15(100)	17(45)
2. Rectal Exam	5(33)	14 (93)	15(100)	5(22)	14 (93)	19(50)
3. Abdom. Exam	4(27)	14 (93)	15(100)	5(22)	14 (93)	19(50)
MEAN	(24)	(96)	(100)	(17)	(96)	(48)
C. Laboratory						
1. Hematocrit	3(20)	14 (93)	15(100)	4(17)	14 (93)	18(47)
2. Hemoglobin	3(20)	15(100)	15(100)	4(17)	15(100)	19(50)
3. Stool Guaiac	2(13)	4 (27)	5 (33)	2 (9)	4 (27)	6(16)
4. Procto	6(40)	10 (67)	11 (73)	7(30)	10 (67)	17(45)
5. Barium Enema	4(27)	11 (73)	12 (80)	6(26)	11 (73)	17(45)
MEAN	(24)	(72)	(77)	(20)	(72)	(41)
D. Mgmt/Treatment						
1. Hosp. for Confirm.	6(40)	14 (93)	14 (93)	6(26)	14 (93)	20(53)
MEAN	(40)	(93)	(93)	(26)	(93)	(53)
MEAN PERCENTS	(24)	(84)	(87)	(19)	(84)	(44)

TABLE 6E (CONT'D). COLON/RECTAL CANCER*

Cases:	84	Ambulatory Visits	23
Sample:	15	Hospital Admissions	15
		Total Encounters	38

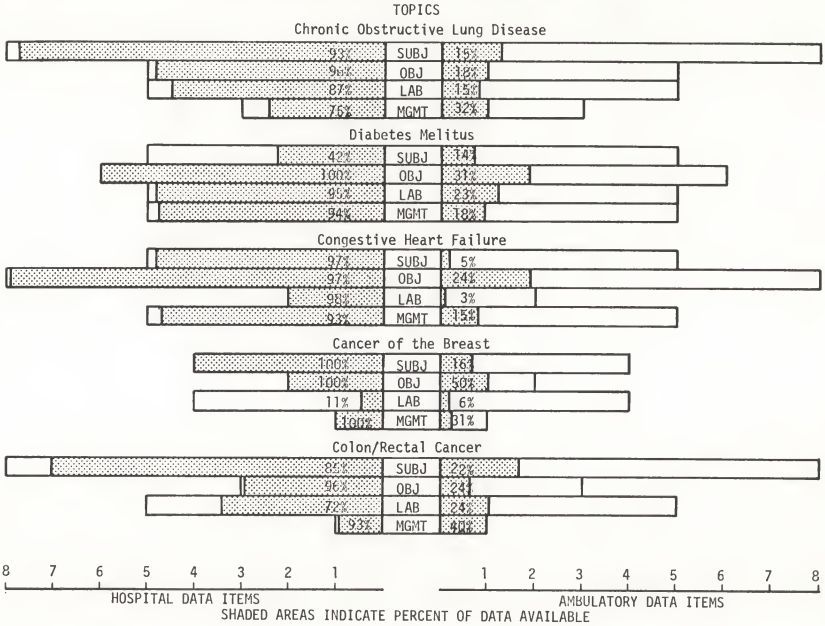
Staging Summary	Ambulatory Number of Encounters	%	Hospital Number of Admissions	%	Number of Discharges	%
IA. Least Severe			0	0		
IB.			6	40		
II.			5	33		
III.			2	13		
IV. Most Severe			2	13		
Expired						
Not Recorded	15	100			15	100
TOTAL	15	100	15	99	15	100

*Ambulatory encounters for cancer patients were not staged.

C. Availability of Review Data

The degree of data availability is measured by the percent of patient medical records in which any particular data item was found. These percentages are given in detail in Table 6 and summarized in graphical form in Figure 3. The lengths of the bars are proportional to the number of criteria/data items recorded for each criteria category within topics. Hospital data is shown on the left and Ambulatory on the right. The shaded areas correspond to the percentages of data available in the medical records and is based on the HCMS sample of 101 cases. It is evident from this chart that hospital data items are far more complete than ambulatory items for this study. Availability rates for hospital data ranged from 11% to 100% with a median of 95% and a mean of 86%. The 11% rate appeared for a set of laboratory criteria for Cancer of the Breast which did not seem to be used with any frequency. Availability rates for ambulatory data ranged from 3% to 50% with a median of 20% and a mean also of 20%.

FIGURE 3
NUMBERS OF CRITERIA/DATA ITEMS AND PERCENT OF DATA AVAILABLE
FROM HOSPITAL AND AMBULATORY MEDICAL RECORDS
BY CRITERIA CATEGORY WITHIN TOPIC (HCMS SAMPLE DATA)



SECTION VI

RESOURCES AND COST

INTRODUCTION AND METHOD

This section presents the personnel resources used by CMPSRO in planning, developing and operating an ambulatory review program from November 1, 1976 to June 30, 1978.

Personnel and other resources for specific functions are analyzed to present trends over time and to provide some indication of the resources required by review organizations during implementation of ambulatory review.

To develop accurate information on resource use, CMPSRO collected personnel hours spent on specific activities and forwarded the information to HCMS. Three conditions suggested special procedures for recording and collecting personnel hours:

1. Having CMPSRO personnel record their hours was likely to increase the face validity of the information collected.
2. Vouchered cost information was not considered reliable because of the variety of PSRO procedures used in billing the Health Standards and Quality Bureau (HSQB).
3. Vouchered personnel information frequently does not contain volunteer physician time and overtime which are required for an accurate estimate of resource use.

In collecting resource information, HCMS and the PSRO discussed systematic recording procedures, developed data compilation procedures and defined specific terms and categories.

Participants in the demonstration project were asked to describe their ambulatory review activities and record the number of hours spent on a daily or weekly basis. During initial discussions, HCMS and the PSRO developed rigorous procedures for collection of personnel data, and a monthly activity log with a standard format was designed to record

information, CMPSRO decided to use their own logs. The logs and all minutes of meetings were forwarded to HCMS on a monthly basis.

Categorization and Compilation of Resource Data

To facilitate the compilation and presentation of data, HCMS classified the information contained in the CMPSRO logs into a standard format composed of three personnel categories:

1. Physicians--including physicians working wither in staff capacity or as special panel consultants
2. Management/Technical--a) Management: all personnel assigned the responsibility to administer the project or to assist in managing the project, and b) Technical: personnel principally engaged in technical design of the project, analysis of the data, providing liaison with data processing, etc.
3. Data Collection/Clerical--a) Data Collection: those personnel retrieving data from medical record charts, transforming and coding data for subsequent processing, etc., and b) Clerical: secretarial personnel whose duties are typing, filing and generally supporting the project.

Each participant in the demonstration project was classified into one or more of the above three categories depending on type of work performed during the reporting periods. Where the choice between categories 2 and 3 was not clear, persons receiving $7 or more per hour were assigned to the management/technical category and those receiving less than $7 per hour to the data collection/clerical category.

Six major functional categories were identified as spanning the work effort of the project for the period under study. The six functions are:

1. Planning and Administration--includes activities relating to system-wide staffing and coordination, system design and approach and the administrative support activities that facilitate review system implementation.
2. Topic Selection--work related to identifying problems or topics for review and the selection of those topics likely to produce the greatest benefit
3. Criteria Development--development of criteria related to the problem or topic under study which can be measured or compared by data being collected
4. Data Collection (includes abstracting)--activity of collecting information from required data sources.
5. Data Processing and Analysis--activity of compiling, organizing and displaying data in preparation for professional interpretation. The processing and analysis can be accomplished manually or by machine. The analysis activity is defined as developing statistics from data collected for reviews.
6. Review and Decision-Making--professional (physician or other staff) examination and interpretation of processed information

HCMS allocated the personnel hours reported to the appropriate function by personnel category. Some interpretive judgements were made

in determining which function most closely correlated to the work done as reported by the activity logs. One HCMS staff member allocated activities to the appropriate category, and two other staff members reviewed the process for consistency.

Information used in assigning resources to appropriate functions and categories was taken solely from data entered by personnel on the activity log. Usually CMPSRO personnel described an activity in detail and no judgment was required in assigning it to a function.

PRESENTATION OF RESOURCE DATA

The total personnel hours expended by the project for the period under study is shown in Table 7, distributed by personnel category and tabulated by function. Figure 4 is a graphic representation of this table. In the graph, the percent of total hours worked by members of each of the three personnel categories is represented horizontally and the percent of hours used for each functional category is represented vertically. Areas within the bars are proportional to the number of hours expended by any one personnel category for any one function.

Table 8 presents the same data in more detail, showing the hours devoted to each functional category distributed by personnel class and tabulated by calendar quarter. Percents of personnel resources used for each quarter are given for the function and separately by personnel category.

TABLE 7: DISTRIBUTION OF TOTAL PERSONNEL HOURS
BY FUNCTION AND PERSONNEL CATEGORY

FUNCTION	PERSONNEL CATEGORY MD	(%)	MGMT/ TECHNICAL	(%)	DATA/ CLERICAL	(%)	TOTAL	(%)
Planning and Administration	339	(66)	1,933	(75)	3,210	(61)	5,482	(66)
Topic Selection	6	(1)	1	(0)			7	(0)
Criteria Development	69	(14)	13	(1)	1	(0)	83	(1)
Data Collection, Abstracting	46	(9)	349	(13)	1,323	(25)	1,718	(20)
Data Processing	3	(1)	296	(11)	674	(13)	973	(12)
Review and Decision Making	47	(9)			51	(1)	98	(1)
TOTAL	510	(100)	2,592	(100)	5,259	(100)	8,361	(100)
PERCENT	6%		31%		63%		100%	

FIGURE 4

DISTRIBUTION OF TOTAL PERSONNEL HOURS BY FUNCTION WITHIN PERSONNEL CATEGORY

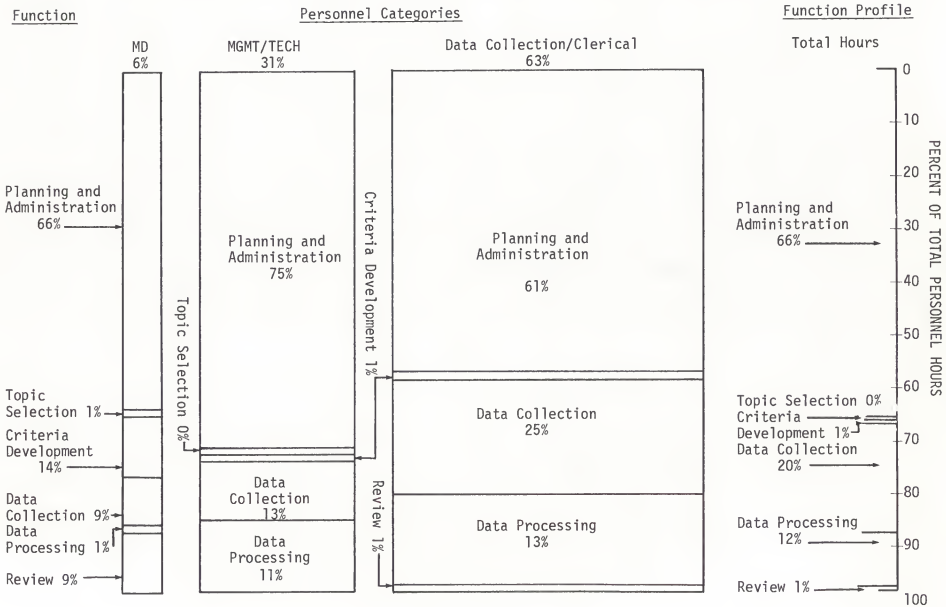


TABLE 8: DISTRIBUTION OF PERSONNEL HOURS FOR FUNCTIONS BY CALENDAR QUARTER AND PERSONNEL CATEGORY

FUNCTION	CALENDAR QUARTER	PERSONNEL CATEGORY MD (%)	MGMT/ TECHNICAL (%)	DATA/ CLERICAL (%)	TOTAL (%)
Planning and Administration	10-12/76	47 (14)	85 (4)	216 (7)	348 (6)
	1-3 /77	70 (21)	82 (4)	474 (15)	626 (11)
	4-6	55 (16)	321 (17)	574 (18)	950 (17)
	7-9	45 (13)	271 (14)	486 (15)	802 (15)
	10-12	51 (15)	389 (20)	474 (15)	914 (17)
	1-3 /78	54 (16)	482 (25)	493 (15)	1,029 (19)
	4-6	17 (5)	303 (16)	493 (15)	813 (15)
	TOTAL	339 (100)	1,933 (100)	3,210 (100)	5,482 (100)
	PERCENT	6%	35%	59%	100%
Topic Selection	10-12/76	2 (33)			2 (29)
	1-3 /77	1 (17)			1 (14)
	4-6	3 (50)	1 (100)		4 (57)
	7-9				
	10-12				
	1-3 /78				
	4-6				
	TOTAL	6 (100)	1 (100)		7 (100)
	PERCENT	86%	14%		100%
Criteria Development	10-12/76	10 (14)			10 (12)
	1-3 /77	15 (22)			15 (19)
	4-6	19 (28)	5 (39)		24 (29)
	7-9	18 (26)	6 (46)		24 (29)
	10-12		2 (15)		2 (2)
	1-3 /78	5 (7)		1 (100)	6 (7)
	4-6	2 (3)			2 (2)
	TOTAL	69 (100)	13 (100)	1 (100)	83 (100)
	PERCENT	83%	16%	1%	100%
Data Collection	10-12/76				
	1-3 /77	5 (11)	13 (4)		18 (1)
	4-6	12 (26)	62 (18)	186 (14)	260 (15)
	7-9	13 (28)	196 (56)	425 (32)	634 (37)
	10-12	11 (24)	22 (6)	310 (23)	343 (20)
	1-3 /78	5 (11)	9 (3)	285 (22)	299 (17)
	4-6		47 (13)	117 (9)	164 (10)
	TOTAL	46 (100)	349 (100)	1,323 (100)	1,718 (100)
	PERCENT	3%	20%	77%	100%

TABLE 8 (CONT'D)

FUNCTION	CALENDAR QUARTER	PERSONNEL CATEGORY MD (%)	MGMT/ TECHNICAL (%)	DATA/ CLERICAL (%)	TOTAL (%)
Data Processing	10-12/76				
	1-3 /77				
	4-6				
	7-9		54 (18)	44 (7)	98 (10)
	10-12	3 (100)	44 (15)	126 (19)	173 (18)
	1-3 /78		62 (21)	211 (31)	273 (28)
	4-6		136 (46)	293 (43)	429 (44)
	TOTAL	3 (100)	296 (100)	674 (100)	973 (100)
	PERCENT	1%	30%	69%	100%
Review and Decision Making	10-12/76				
	1-3 /77				
	4-6				
	7-9	6 (13)			6 (6)
	10-12	6 (13)			6 (6)
	1-3 /78	32 (68)		3 (6)	35 (36)
	4-6	3 (6)		48 (94)	51 (52)
	TOTAL	47 (100)		51 (100)	98 (100)
	PERCENT	48%		52%	100%

APPENDIX A

CENTRAL MASSACHUSETTS PSRO CRITERIA

APPENDIX A

CENTRAL MASSACHUSETTS PSRO

CRITERIA

TOPICS	STUDY TIME FRAME
1. Cancer of the breast	3 months prior to admission
2. Diabetes	
3. Cancer of the colon/rectum	
4. Congestive heart failure	
5. Chronic obstructive lung disease	

CRITERIA	TOPIC 1	2	3	4	5
SUBJECTIVE					
1. Chief complaint	x				
2. Polyuria		x			
3. Polydypsia		x			
4. Weight change		x		x	
5. Fatigue		x			
6. Change in bowel habits			x		
7. Black stools			x		
8. Abdominal mass			x		
9. Abdominal distension			x		
10. Weakness			x		
11. Abdominal pain			x		
12. Rectal bleeding			x		
13. Weight loss			x		
14. Dyspnea				x	x
15. Orthopnea				x	
16. Edema				x	
17. Chest pain				x	
18. Sputum production					x
19. Activity limits					x
20. Smoking history					x
21. Febrile illness					x
22. Allergy					x
23. Cough					x
24. Clubbing					x
OBJECTIVE					
1. Nipple discharge	x				
2. Skin changes	x				
3. Other masses/nodes	x				
4. Breast mass	x				
5. Weight		x			
6. Fundi		x			
7. Pulses		x			
8. Neurologic exam		x			

CMPSRO CRITERIA -- CONTINUED

CRITERIA (Subjective)	TOPIC 1	2	3	4	5
9. Skin exam		x			
10. Abdominal exam			x		
11. Rectal exam			x		
12. Pallor			x		
13. Blood pressure		x		x	
14. Heart rate				x	
15. Rales				x	
16. Gallop rhythms				x	
17. Edema				x	
18. Neck/vein distension				x	
19. Big liver				x	
20. Office weights				x	
21. Pulse					x
22. Cyanosis					x
23. Chest findings					x
24. Respiration rate					x
LABORATORY					
1. Mammography	x				
2. Xerography	x				
3. Smear	x				
4. Aspiration	x				
5. Urine or blood glucose		x			
6. BUN, urine analysis		x			
7. Chest x-ray		x			
8. EKG		x		x	x
9. Electrolytes		x			
10. Hematocrit			x		
11. Hemoglobin			x		
12. Stool guaiac			x		
13. Protoscopy			x		
14. Barium enema			x		
15. Pulmonary function test					x
16. Blood gases					x
17. Blood count					x
MANAGEMENT / MEDICATION					
1. Diet		x			
2. Oral hypoglycemics		x			
3. Insulin		x			
4. Consultation		x			
5. Weight				x	
6. Digitalis				x	
7. Diuretics				x	
8. Sodium restrictions				x	
9. Home oxygen					x
10. Medications					x
11. Baseline medication	x	x	x	x	x

CMPSRO CRITERIA -- CONT.

ADMINISTRATIVE DATA ELEMENTS -- ALL TOPICS

1. Physician identification
2. Specialty
3. Site number
4. Patient identification
5. Date of birth
6. Sex
7. Ethnic status
8. Discharge date
9. Diagnosis date
10. Admission date
11. Initial Dx to first visit
12. First visit to Dx
13. Admission stage
14. Discharge stage
15. Discharge diagnosis
16. Admitting problem
17. Diagnosis validated

APPENDIX B

CENTRAL MASSACHUSETTS PSRO STAGING CRITERIA

APPENDIX B

CMPSRO STAGING CRITERIA

Diabetes Mellitus (D.M.)

Stage I

A. Diet or oral drug controlled
No complications
F.B.S. < 200

B. Insulin Dependent
No complications
F.B.S. < 200

Stage II

Secondary Complications

1. Retinopathy
2. Mild renal failure (B.U.N. > 40 and/or proteinuria)
3. Symptoms of vascular insufficiency (i.e., back, leg pain on walking)
4. Leg ulcers
5. Neuropathy
6. ↓ Pulses
7. Documented heart disease (ASHD, MI, etc.)
8. More than one F.B.S. > 200 or < 300 in frequent determinations

Stage III

Any of Stage II criteria plus:

Failure of ulcers to respond to therapy
F.B.S. > 300 - lack of control in more than one determination
Uncontrolled infections
Gangrene of extremities
Change in renal function (↑ B.U.N.)
Vascular insufficiency - Severe pain on walking
New onset of absent pulses
Mild Ketoacidosis - CO_2 > 10, or < 23, absence of coma

Stage IV

Any of Stage III criteria plus:

Ketoacidosis - CO_2 < 10 and/or coma

Septicemia

CMPSRO STAGING CRITERIA (CONT'D)

Chronic Obstructive Lung Disease (C.O.L.D.)

Stage I

A. S.O.B. - No limitation of daily activity

B. Stage IA plus respiratory infection

Stage II

A. S.O.B. - moderate limitation or change in activity

B. Stage IIA plus:

Respiratory infection and/or ↑ sputum production

Stage III

S.O.B. - Symptoms at rest
$PCO_2 > 45$
$PO_2 < 55$
Respiratory infection uncontrolled
Forced vital capacity (F.V.C.) < 50%
$\frac{F.E.V._1}{F.V.C.} < 50\%$

Stage IV

Any of Stage III plus:

Change in mental status (hypoxia, hypocapnia)
Acidosis - blood pH < 7.35
Requires intubation (endotracheal or tracheal)

Congestive Heart Failure (C.H.F.)

Stage I

S.O.B. - No limitation of daily activity on treatment

Stage II

Moderate limitation of daily activity while on therapy
(work, recreation)
Progressive pedal or ankle edema
Progressive weight gain
Crepitant bibasilar rales

CMPSRO STAGING CRITERIA (CONT'D)

Stage III

Progression of Stage II criteria
Symptoms at rest (S.O.B. etc.)
Objective changes

1. Progressive C.H.F. on X-ray despite adjustment of therapy
2. Hypoxia - $PO_2 < 60$
3. C.V.P. > 20

Stage IV

Any of Stage II criteria plus:

Pulmonary edema
Shock - anuria
↓ NA < 130

CMPSRO STAGING CRITERIA (CONT'D)

STAGING CRITERION
(Cancer)

Colon

I. Confined to submucosa

II. A. Into muscle

B. Through muscle to serosa

III. A. Nodes involved but tumor only into muscle

B. Nodes involved but tumor through muscle

IV. Distant metastasis (usually liver)

Breast

I. Size of mass less than 2.5 cm.

II. Size of mass greater than 2.5 cm.

III. Nodes, fixed or mobile

IV. Distant metastasis

APPENDIX C

CENTRAL MASSACHUSETTS PSRO AMBULATORY CARE DEMONSTRATION

PROJECT ANALYSIS DISPLAYS

APPENDIX C

CMPSRO

AMBULATORY CARE DEMONSTRATION PROJECT

ANALYSIS DISPLAYS

1. Distribution of patients by Admission Stage.
2. Distribution of patients by type of Ambulatory Care Practice.
3. Distribution of patients by Admission Stage and type of Ambulatory Care Practice.
4. Sex Distribution by Diagnosis.
5. Distribution of Hospitalization Payment Source by Ambulatory Care Practice Type.
6. Age Distribution of Patients.
7. Patient Age Statistics by Practice Type.
8. Distribution of patients by Practice Type, Admission Stage and Age Range.
9. Distribution of patients according to Time Interval between first Ambulatory Encounter and Physician Diagnosis.
10. Distribution of patients according to the Time Interval between the first Ambulatory Encounter and the Physician Diagnosis.
11. Distribution of patients by Primary Diagnosis Site (Cancer) and Admission Stage.
12. Distribution of patients by Principal Admission Problems/Symptoms by Admission Stage.
13. Distribution of Time Intervals between patient's first visit and Physician Diagnosis by Practice Type.
14. Distribution of Time Intervals between patient's first symptoms and first Physician visit by Practice Type.
15. Admission Stage Distribution of patients by Age.
16. Patients' mean hospital Length of Stay by Age.
17. Distribution of patients by Physician Participation Status.
18. Study Population Distribution by Participation Status of Ambulatory Physician.
19. Distribution of patients by Specialty of Ambulatory Physician.
20. Distribution of patients by Hospitalization Payment Source and Admission Stage.
21. Distribution of Study Physicians by Specialty.

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